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Part I

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CONTRIBUTIONS

TO THE

NATURAL HISTORY OF LABUAN.

AND THE ADJACENT

COASTS OF BORNEO.

JAMES MOTLEY, of LABUAN,

AND

LEWIS LLEWELLYN DILLWYN, F.L.S., ETC.

LONDON:

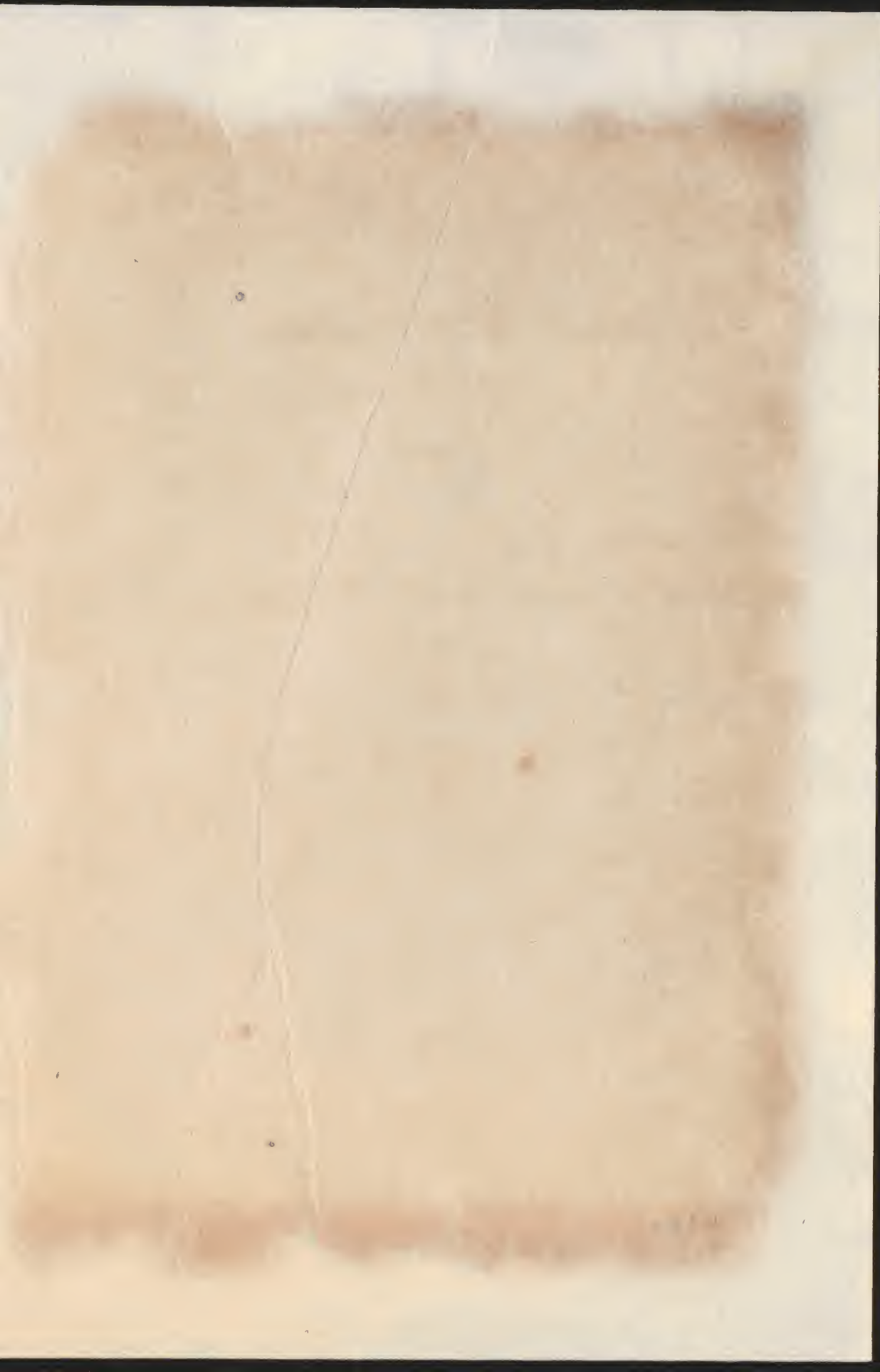
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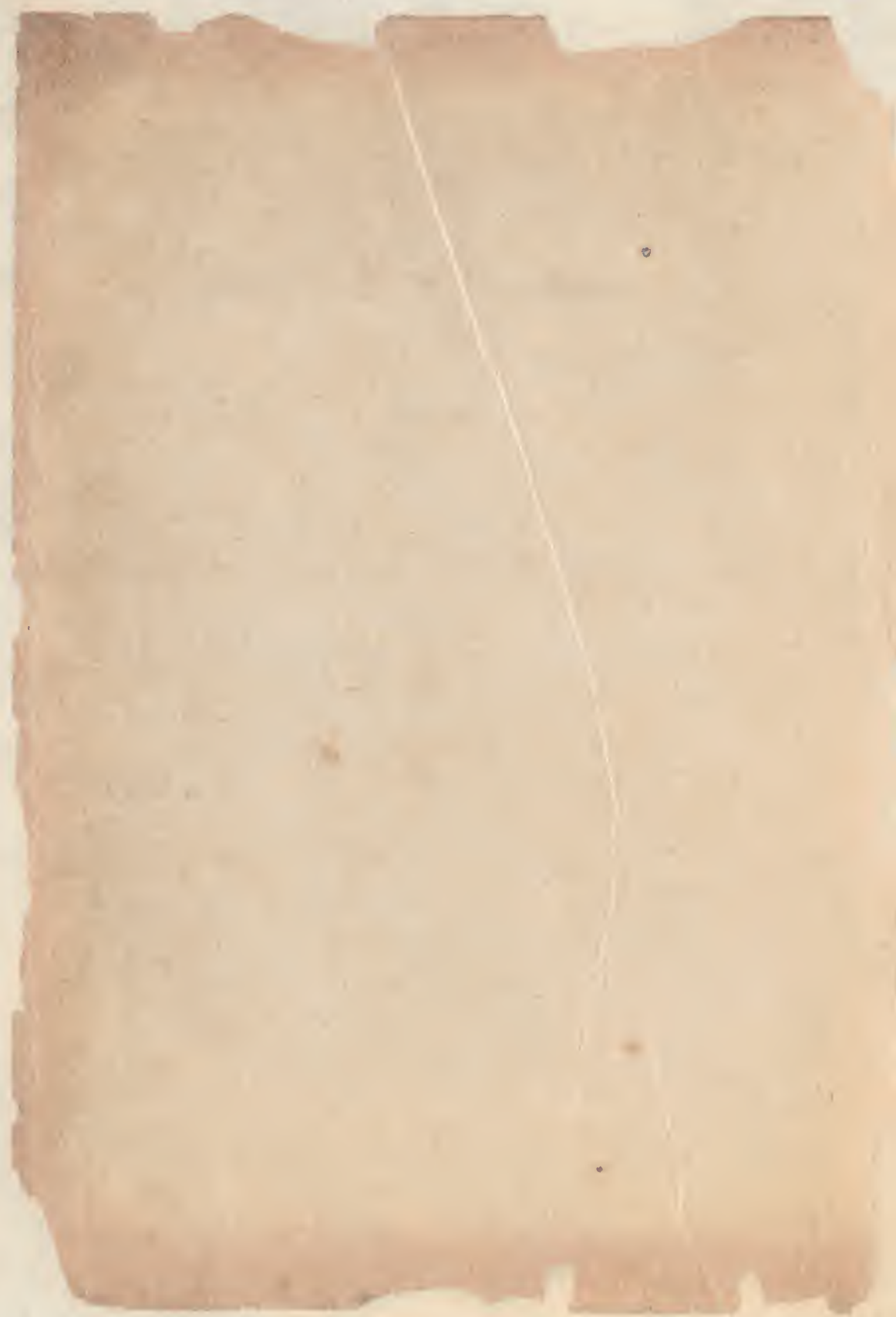
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CONTRIBUTIONS
TO THE
NATURAL HISTORY OF LABUAN,
AND
THE ADJACENT COASTS OF BORNEO.

PART I.

M A M M A L I A.

Order Cheiroptera.

Fam. Pteropinæ.

Gen. Cynopterus.

Cynopterus Horsfieldii (British Museum).

Above, rufous brown ; sides of neck and body rufous.

Below, light ash gray ; chin yellowish.

Length, to the base of the tail, 3 inches 1-tenth.

„ of tail, 3-tenths.

„ of head, 1 inch 2-tenths.

„ of ears, $\frac{1}{2}$ an inch.

„ of nose, from the base of ears to the tip, 9 tenths.

„ of fore-arm, 2 inches 3-tenths.

„ of thumb and claw, 1 inch.

„ of hind foot, 4-tenths.

Breadth of ears, 4-tenths.

Expansion of wings, $12\frac{3}{4}$ inches.

Very common near streams in the jungle, and easily disturbed in the day-time.

Order Insectivora.

Fam. Soricidæ.

Gen. Sorex.

Sorex Grayii.

Colour, brown above, grayish brown below : tail, quadrangular,

nearly naked, being covered only with elongated scattered hairs thinly interspersed. Teeth white; incisors $\frac{11}{11}$, the lower ones strong and much produced, their upper surface smooth; canines none; false molars $\frac{5\frac{1}{2}}{5\frac{1}{2}}$; molars $\frac{4\frac{1}{4}}{4\frac{1}{4}}$; ears rather large.

Length from tip of nose to base of tail, $4\frac{1}{4}$ inches.

„ from tip of nose to base of ears, 1 inch.

„ of tail, $2\frac{1}{4}$ inches.

We are informed by J. E. Gray, Esq., that there is an unnamed *Sorex*, from the mountains of India, in the collection of the British Museum, which much resembles this species, differing, however, in having the tail very closely covered with short hairs, as well as with the scattered elongated ones described above as characteristic of the present species.

The specimen from which the above description is taken, is a female, and was found with its male and young among some rotten wood and dead leaves: when caught it bit savagely.

Order Rodentia.

Fam. Sciuridæ.

Gen. *Pteromys*.

Pteromys melanopis (Gray).

Black-eared Taguean (Brit. Mus. Catalogue).

Kubong (Malay name).

Above, bright rufous, many of the hairs being tipped with black; ears grizzled sandy white round the margin of the upper part, the hairs of which are short and compact, behind this margin is a tuft of long loose black hair; the lower surface of the body is light rufous without any black. Tail at the base, the same colour as the body, becoming lighter towards the tip; the tip itself for more than an inch is black; feet black; parachute corresponds as to general colour with that of the body both on the upper and lower surface, except that on the upper surface it passes to a deep ferruginous brown towards the outer edge; along its outer edge a stripe of sandy white extends from the fore to the hind leg.

Length, from the nose to the base of the tail, 17 inches.

Tail beyond, about the same.

These animals are very common in Labuan, though, as they move only in the evening, they are not often seen. The flight is slow, from a higher to a lower point, and appears to be made without motion of the flying membrane, and is, in fact, a mere sustained leap. They live and breed in hollow trees, often at a great height from the ground, and run about

the trunks and branches with agility equal to that of our common Squirrels. When caught they are very fierce, and will fly at one's hand with the ferocity of a bulldog. We have seen several half-tame individuals, and have been told that if taken young they become as tame as kittens. In felling a large old tree at Tanjong Kubong,* a whole family, male, female, and two young ones, was caught; being broad daylight the poor things seemed quite discomfited, and made no attempt to escape; not having a cage ready they were put into a tub until the next day, and during the night the parents and one young one escaped; the next day the remaining young one was put into a cage, and at night the female came back to the tub, as it was supposed, to seek it; she was caught and put into the cage with her young; to our great regret, however, she killed it. She lived for several weeks, eating chiefly boiled rice and plantains, and drinking great quantities of water; she remained very fierce to the last; she always slept huddled up in a corner with her flying membrane folded up quite out of sight and her tail round her neck, a sleeping posture we have noticed in every individual we have ever seen. The young ones were very thickly furred, and the hair on the tail much longer than in the adults; their colour was a dull ashy gray, and they altogether looked so unlike their parents, that, but that they were caught with them, and had no teeth developed except the incisors, we should have fancied them another species.

Gen. *Sciurus*.

Sciurus ephippium (Gray).

Sang karawak (Malay name).

Crown of the head, black, the hairs being generally tipped with rufous, the latter colour predominating towards the nose, which is itself, however, nearly black; ears, sides of the head, neck, chin, upper throat and front and hinder edge of the fore legs rufous; back black; upper neck, shoulders, flanks and upper part of the thighs yellowish gray, the hairs being black and tipped with sandy

* Tanjong Kubong, where the residence of Mr. Motley is situated, is a point of land at the north-eastern part of the Island, and its name indicates an abundance of the Taguans, Kubong being the name for these animals in the Malay language, and Tanjong for a point of land.

yellow; belly, inner pair of the fore and hind legs, and stripe on the under side of the tail, tawny yellow, rest of the tail black, with many of the hairs, especially towards the end, tipped with yellow; the tip of the tail is black; a tuft of long black bristles springs from behind the nose, and another smaller tuft of the same colour from behind the hind part of the eye; a few bristles, either black or rufous yellow, spring from the outer edge of the fore-arm, just above the foot; on the fore-foot is a rudimental thumb protected by a flat nail.

Length, from nose to base of tail, 16 inches.

" of tail, to the end of the tail joints, 16 inches.

" of tail, to the end of the hair, 19 inches.

" from nose to the base of the ears, 2 inches.

These Squirrels, like the last species, are very abundant in the island, frequenting the trees, and rarely if ever descending to the ground except when obliged by some accident to do so, and it is singular to see the facility with which they will run head first down the straight and smooth trunk of a very high tree. They are, to a certain extent, gregarious, as we have seen as many as twenty together feeding in the same tree; when thus engaged they make no noise, and are so intent upon their food that they will not leave it until a shot is fired among them; sometimes even then one or two will remain, while the rest disperse, but quickly reassemble; when alone, they are wary and difficult to approach, making their way along the tree-tops faster than a man can easily follow; the males and females generally appear to associate in pairs throughout the year; the nest is said to be built in a high tree and lined with moss, but we have not yet seen one. We once shot a pregnant female, containing three young ones, and her mate, who was with her at the time, continued to haunt the spot for several days, making a moaning noise; the usual note is a harsh loud chatter, each single sound being separated by a longer interval towards the close, much in the way in which the braying of an ass is brought to an end, otherwise the noise is strikingly like the chatter of a magpie: we have seen it also sitting upon a branch making a sort of often repeated croak, which seemed to shake its whole frame, and gave the tail a peculiar swinging motion; the tail is always pendant, and never, as in the English Squirrel, carried over the back; when wounded they are very bold and fierce,

and stand upon the defensive with great bravery. In some parts of Borneo they are said to be eaten; some Bruni Malays, however, whom we asked about it, expressed the utmost disgust at the idea, though the same men would eat any living thing which the sea produces, even down to the *Actinia*. When made into soup they are excellent.

Sciurus vittatus (Raffles, Lin. Trans.).

The Tupai (Gray, Cat. of Brit. Mus.).

Colour above, yellowish gray, each hair being black, with two and sometimes three bands of fawn colour; below, brownish red; tail of the same colour as the upper body, except at the lower surface towards the tip, where it passes into a rufous brown; the gray of the back is separated from the red of the belly, from the fore to the hind leg, by a double stripe, of which the lower part is black and the upper yellowish white; chin and space round the eyes, and extending back nearly to the ears, black; moustaches, long and black. Ears rounded, short.

Length, to base of tail, 8 inches.

„ of tail, 8 inches.

This species appears to be rare in the island; on the main land at Bruni, however, they are very common and destructive to the young Cocoa-nuts. Sir T. S. Raffles, in vol. xiii. of the "Transactions of the Linnæan Society," gives a description of the *Sciurus vittatus*, which corresponds with the above characteristics, except that the Labuan specimen wants the fawn-coloured ring round the eyes which he speaks of.

Sciurus modestus.

.. Phillipensis (Waterhouse, Proc. Z. S.)?

*Bassing (Malay name).

Head above, back, outer part of fore and hind legs dark olivaceous colour, becoming lighter towards the lower parts, which are yellowish white; the colour of the tail resembles that of the back, but is of a redder tinge. The general colour of the upper parts is produced by the separate hairs being black, banded with reddish brown; ears small, rounded; moustaches black.

Length to the base of tail, 6 inches 6-tenths.

Tail broken off, but appears to have been from 5 to 6 inches in length.

Nose to the base of the ears, 1 inch 4-tenths.

This species is probably the *Sciurus modestus* figured in the work published by the Dutch Government, as it differs only from that figure in being somewhat darker.

It lives on the ground, and is very abundant, though but seldom seen during the day; it frequents decaying fallen trees, along the trunks of which it is fond of running, every now and then stopping to jerk up its tail in a peculiar manner; when running it carries its back up like the common English Squirrel, but the tail is not erected; it has a very slight musky smell. We have seen one regularly hunted by scent by a Musang, a sort of Polecat; it evinced the greatest distress, and constantly uttered a sharp squeak; these Squirrels frequent store-houses, like rats, and commit great havoc among the rice bags.

Sciurus rufoniger (Gray) Var.

Throat; body below, and inner sides of fore and hind legs deep rufous red; all the rest of the body jet black; ears short and rounded; whiskers long.

Length from nose to base of tail, $10\frac{1}{2}$ inches.

„ of tail, 10 inches.

„ from tip of nose to base of ear, 1 inch 8 lines.*

The present specimen differs from the description given of *Sciurus rufoniger* by Mr. Gray, in wanting the "indistinct streak along each side, and the outer side of the thigh white grizzled."

These handsome little animals appear to be solitary in their habits, as we have only once seen even two together, and these we believe had their nest near. Unlike the *Sciurus ephippium*, they are silent and lithe in their motions, getting along the tree-tops almost without shaking them; in their note they somewhat resemble the last-mentioned Squirrels, as it is of the same character, but rather an oft-repeated grunt than a chatter, not unlike a repetition of the imperfect note of the Cuckow just before he becomes silent: the tail is usually carried pendant. A young one, which Capt. Keppel caught in Labuan, slept with the back up and the nose between the hind feet, like some monkeys.

* Throughout the work a "line" means one-twelfth of an inch.

Order Ruminantia.

Fam. Moschidae.

Gen. Tragulus.

Tragulus Kanchil (Gray).

Moschus Kanchil (Raffles).

Pulandok (Malay name).

Colour deep reddish brown, becoming very dark on the back and crown of the head, and light on the flanks; belly fulvous yellow; down the nape of the neck is a decided stripe of the dark colour of the back, but of a still deeper shade; a narrow white stripe extends along each side of the belly, and is continued down the inner side of the thigh; a similar stripe also runs down each side of the neck from the lower jaws (which are white) to the part between the fore legs; a third intermediate stripe extends from the chest about half the way up the throat; between these stripes the colour on the throat is dark brown, as on the back. The upper surface of the tail is brown, and the lower surface white.

Length from nose to the tip of tail, 17 inches.

„ of tail, 2 inches.

„ of metatarsus, nearly $3\frac{1}{2}$ inches.

„ of metacarpus, not quite 2 inches.

These elegant little animals are rare in the island, and are very seldom seen, as they live among long grass. The Malays catch them in snares, and they are very good eating, having much the flavour of Hare. The specimen from which the above description is taken, was caught alive, and soon became extremely tame; it was very fond of the flower-buds of the *Dillenia speciosa*, and a small species of *Portulaca*.

AVES.

Order Raptores.

Fam. Strigidae.

Sub-fam. Striginae.

Gen. Phodilus.

Phodilus badius.

Strix badia (Horsfield).

Burong Hantoo, or Devil-bird of the Malays.

Above, general colour bright chesnut, the tip of the feathers being chesnut and the basal parts of a bright golden colour: the back is irregularly marked with spots dispersed in a linear direction, extending from the nape to the tail-covers; towards the nape these spots are small, and for the most part deep brown, but towards the tail they become larger, and are varied with white, the feathers having generally two spots of white and two of brown placed transversely across the shaft of each.

Below, whitish, the throat and breast tinged with pale yellowish chesnut and the belly and lower tail-covers with a decided brown madder colour; all the lower parts are thinly marked with irregular, small, deep brown spots; sides of the body under the wings golden chesnut.

Head; crown, dark chesnut interspersed with a few yellowish white feathers; the upper part of the ruff round the eye deep chesnut, with an outer edge of light whitish feathers, and the lower part white, broadly edged with deep rich brown; forehead very light madder brown.

Wings, bright chesnut, the covers marked like the back with brown and white spots; the quills banded with deep brown, the ground colour of the primaries fading more or less into tawny white at the outer edges.

Tail, bright chesnut, banded with brown, the outer edges fading into tawny white.

Legs feathered to the feet.

Length, total, $11\frac{1}{2}$ inches.

„ of bill from gape, 1 inch.

„ of wings, 7 inches.

„ of tail, 3 inches.

„ of tarsus, $1\frac{1}{2}$ inch.

This beautifully-marked Owl, though rarely seen, is not uncommon in Labuan; it has only a single note, frequently repeated, and which is much like the first note of the

common Wood-owl's cry. Sir T. S. Raffles, in his "Description of the Birds of Sumatra" (Transactions of Linnæan Society, vol. xiii.), says that the name Burong Hantoo is given to Owls in general by the Malays.

Order Passeres.

Tribe Fissirostres.

Fam. Hirundinidæ.

Sub-fam. Cypselinæ.

Gen. Macropteryx.

Macropteryx Klecko.

Cypselus longipennis (Temm. Pl. Col. pl. 83).

Above, metallic green black with reflections of steel-blue, gradually passing into light gray at the upper tail-covers.

Below, from the chin dusky gray, becoming lighter towards the lower tail-covers, which are white.

Behind the eye and covering the ears is a patch of dark chesnut-coloured feathers.

The covers of the wings are the same colour as the back; quills steel-blue.

Tail, steel-blue; deeply forked.

Total length, $8\frac{1}{2}$ inches.

Length of bill from gape, $8\frac{1}{2}$ lines.

" of bill from front base, 3 lines.

" of wings, $6\frac{3}{4}$ inches, extending to the end of the tail.

" of tail, 4 inches.

" of tarsus, $2\frac{1}{2}$ lines.

" of middle toe and claw, nearly $7\frac{1}{2}$ lines.

The female wants the patch of red on the ears, but in other respects resembles the male.

The plumage of the young of this species is oddly mottled, the feathers of the upper parts being dusky brown at the base, passing into metallic green, and tipped with a sort of fringe of reddish brown and white; on the head the brown predominates over the white in this fringe, and is of a much richer colour than that of the back; the lower parts are light brown, each feather being tipped, a crescent of dark brown succeeded by another of white; the wings are irregularly marked with brown of different shades and tawny white.

These birds are common in the island, flying very high, and screaming like the common English Swift; they frequently perch upon dead branches of trees, but always at a great height; the young one which we have described above was caught alive and lived for several days upon grasshoppers; for want of room, however, it was put into a cage

with a Bee-eater, and after some days of peace, a quarrel happened, and the young Swift was killed.

Macropteryx comatus.

Cypselus comatus.

Martinet coiffée (Temm. Pl. Col. pl. 268).

Body above and below, bronzed olive green, excepting the lower tail-covers which are white.

Head, dark steel-blue ; a patch of deep rufous feathers covers the ears ; the feathers over the eyes are long, forming a horn-like crest, arching back over each eye ; the outer edges of these feathers are white, so as to give the crest the appearance of a white eyebrow ; a long strip of white feathers also springs on each side of the beak from below the gape, and extends to the hind head ; parallel to this again, and lower down on each side of the throat, is a smaller and shorter stripe of white.

Wings, dark steel-blue, inner webs and lower sides of the quills dusky ; some of the feathers of the greater covers are tipped with white, so as to form a white patch.

Tail, steel-blue above, dusky brown below.

Total length, $6\frac{1}{2}$ inches.

Length of bill from gape, $7\frac{1}{2}$ lines.

„ of bill from front, $2\frac{1}{2}$ lines.

„ of wings, 5 inches.

„ of tail, 3 inches.

„ of tarsus, 2 lines.

„ of middle toe, $4\frac{1}{2}$ lines.

Not uncommon ; they perch frequently on branches, and breed in hollow trees in the jungle.

Sub-fam. Hirundininae.

Gen. Hirundo.

Hirundo Pacifica.

„ *Javanica* (Vig. and Horsf.).

Hirondelle Orientale (Temm. Pl. Col.).

General colour above, steel-black, the feathers on the back being white at their base ; a ferruginous stripe extends on either side from the nostril to the eye.

Below, body and tail-covers white, chin and throat ferruginous, passing into a rufous brown towards the lower throat.

Wings, dusky black ; covers steel-black.

Tail forked, extending to the end of the wings, dusky black, the four outer feathers on each side having a white spot on the inner web at the distance of about a third of the length of the whole feather from the tip.

Total length, $5\frac{1}{2}$ inches.

Length of bill from gape, $6\frac{1}{2}$ lines.

" of bill from front, 3 lines.

" of wings, $4\frac{1}{4}$ inches.

" of tail, $2\frac{1}{4}$ inches.

" of tarsus, 4 lines.

" of middle toe and claw, 7 lines.

The egg is white, thickly spotted with dark purple; the spots most numerous at the thick end; length, $7\frac{1}{2}$ lines.

These Swallows are common in the island; they generally perch upon dead twigs of trees, from which they look out for their prey, and darting upon it, and returning to their station, something in the same way as the common European Flycatcher does; the Swallow, however, takes rather a longer flight than the Flycatcher. They breed in fissures of rocks, and the nest is composed of mud, and lined with feathers.

Family Coraciadæ.

Sub-fam. Coraciænæ.

Gen. Eurystomus.

Eurystomus Pacificus (Gray's Gen.).

" *Australis* (Gould).

" *Orientalis* (Vig. and Horsf.).

Above, dull sea-green from the nape to the tail; this colour on the nape gradually passes into a greenish brown, which is the colour of the crown and sides of the head.

Below, sea-green with blue reflections; throat rich blue, each feather having a stripe of vivid ultramarine blue running down the shaft.

Wings, covers and scapularies sea-green with blue reflections; spurious wings black edged with blue; primaries above black edged with blue on the outer webs; on the first primary, on the inner web, at about a third of the feather from its base, is a broad band of light changeable blue or green, according to the light in which it is held; this band is continued on the six next primaries on both the inner and outer webs, and on the eighth is a single spot of the same colour on the outer web alone; the inner webs of the under side of the primaries are for the most part broadly margined with rich deep blue.

Tail above, black, the outer feathers exteriorly edged with blue at the basal part; below, black, with the inner webs broadly margined with deep rich blue.

Bill, red.

Total length, 12 inches.

- Length of bill, from gape, $1\frac{1}{2}$ inch.
 „ of bill, from front, 1 inch 2 lines.
 „ of wings, $7\frac{1}{4}$ inches.
 „ of tail, 4 inches.
 „ of tarsus, $7\frac{1}{4}$ lines.
 „ of middle toe and claw, 1 inch 2 lines.
 „ of outer toe, 1 inch ; inner toe, 10 lines.
 „ of hallux, $7\frac{1}{2}$ lines.

This bird does not exactly correspond with the descriptions given of the *Eurystomus Pacificus*, of which species, however, we believe it to be a variety ; the light band on the wing in our bird extends over eight of the primaries instead of six, and there are other slight differences of plumage, which are, however, probably to be accounted for by difference of age or sex.

It is a most active and lively bird, haunting very tall jungle in parties of five or six together ; these fly rapidly in large circles with short quick strokes of the wing, like the flight of Woodpeckers, and frequently swooping down upon one another with loud chattering. When perched, their note is a single full deep-toned whistle, or something between that and the sound of the word "you," when spoken with forcible expulsion of breath from the throat ; the Malays say that their nests are bottle-shaped and suspended from a high branch. The stomach of the bird from which the above description is given was full of the remains of beetles ; the flock from which it was obtained did not show any fear at the report of the gun, as they did not attempt to leave the neighbourhood, though, from the great height of the trees, five shots were fired at them before one was brought down.

Family Alcedinidæ.

Sub-fam. Halcyoninæ.

Gen. Halcyon.

Halcyon Chloris.

Alcedo chlorocephala (Gmel.).

Green-headed King-fisher (Latham).

Above, back sea-green ; tail-covers blue or green, varying according to the light ; crown of the head sea-green, bordered with a black stripe which originates at the gape, passes broadly round the eyes and ears, and narrows at the nape ; the green feathers on the nape adjoining this stripe are white at their base ; a broad collar of white passes from below round the upper neck.

Below, from chin to tail uniform white.

Wings above, blue with green reflections, the blue being most decided towards the quill feathers which are black externally edged with blue; below, white; the quills dusky black.

Tail, above, blue with green reflections; below, dusky black.

Bill, black above, light brownish yellow below.

Total length, $9\frac{3}{4}$ inches.

Length of bill, from gape, 2 inches 2 lines.

" of bill, from front, 1 inch 10 lines.

" of wings, full 4 inches.

" of tail, $2\frac{3}{4}$ inches.

" of tarsus, $\frac{1}{2}$ an inch.

" of middle toe, 1 inch.

" of hallux, $\frac{1}{2}$ an inch.

This is a common bird; it frequently perches upon high trees, and is usually met with near the sea-shore.

Haleyon lilacina (Bon. Consp. Av.).

General colour rufous; above, with brilliant purple violet metallic reflections; rump, light blue; bill, red.

Length, 10 inches.

" of bill, from gape, 2 inches 4 lines.

" of bill, from front, 2 inches 2 lines.

Width of bill, at gape, 11 lines.

Length of wings, 4 inches.

" of tarsus, 7 lines.

" of middle toe, 1 inch 1 line.

" of hallux, 7 lines.

The habits of the Labuan Kingfishers appear to be much alike; they feed almost entirely at sea, and although many of the brooks abound with small fish they are very seldom to be seen far from the beach. A person walking along the shore at high water may often see them dart out of the jungle and dash into the water, seize their prey, and carry it off again among the trees. They never perch on stones or bare branches over the water, like the European species.

Genus *Ceyx*.

Ceyx tridactyla (Strickland, Proc. Z. S. for 1846, p. 99).

Above, from the beak to the tail, rufous red, with brilliant violet blue reflections on the tail-coverts, lower back, and head; close above the beak on the forehead is a small dark spot of this colour; above the eyes, and extending round the hind head, the violet reflections

are especially brilliant; behind the ears is a patch of yellowish white.

Below, reddish yellow and white; chin white.

Wings, scapulars dusky black, tipped with deep blue; covers rufous; quills dusky black, edged with rufous on the inner webs; the outer quill is also edged with this colour on the outer web.

Tail, rufous, tipped with dusky black.

Total length, $5\frac{3}{4}$ inches.

Length of bill, from gape, $1\frac{1}{2}$ inch.

„ of bill, from front, 1 inch 3 lines.

Width of bill, at gape, $\frac{1}{2}$ an inch.

„ of bill, at nostrils, 4 lines.

• Length of wings, $2\frac{1}{2}$ inches.

„ of tail, 1 inch.

„ of tarsus, 4 lines.

„ of toe, 7 lines.

„ of hallux, 4 lines.

We have only met with one specimen of this bird in Labuan.

Family Meropidae.

Sub-fam. Meropinae.

Gen. Merops.

Merops badius (Bon. Cons. Av.).

„ *castaneus* (Latham).

Above, head, neck, and upper back rich chesnut; lower back green, passing into light blue at the tail-covers.

Below, chin blue, passing into grass-green at the upper throat; this green continues to the tail-covers, which are very light blue; the blue of the chin is separated from the chesnut of the crown by a stripe of dusky black which passes under the eyes.

Wings, quills, below dusky black broadly margined on the inner webs with rufous, above green tipped with black and edged with rufous on the inner webs; covers green.

Tail blue green above; brownish black below.

Length, to the end of tail, $8\frac{3}{4}$ inches.

„ to the end of the two middle tail-feathers, $11\frac{1}{4}$ inches.

„ of bill, from gape, $1\frac{3}{4}$ inches.

„ of bill, from front, 1 inch 7 lines.

„ of wings, 4 inches.

„ of tail (without the two centre feathers) 3 inches.

„ of tarsus, 5 lines.

„ of middle toe, 9 lines.

„ of hallux, 4 lines.

These birds only come to Labuan to breed, which they do in deep holes dug in the sand; they all leave when the rains begin: they principally haunt those places where there is a

small open grassy spot on the sea-shore, associating in flocks of ten or twelve, and are extremely shy and difficult to approach; they sail in circles with the flight of a small hawk, sometimes at a great height, and sometimes close to the grass; when they perch, which is not often, they usually select a bare twig. We kept a young one alive for some time, and fed him upon Cockroaches and Grasshoppers, and he became exceedingly tame: he was, however, at last killed by eating a large spider which evidently poisoned him.

Tribe Tenuirostres.

Fam. Promeropidae.

Sub-fam. Promeropinae.

Gen. Nectarinia.

Nectarinia pectoralis (Horsf.).

Pectoral or Dark-breasted Sun-bird (Jardine).

Male; above, from the forehead to the tail yellowish olive-green; the forehead is steel-blue.

Below, from the chin to the upper breast steel-blue, thence to the tail yellow.

Wings, brown, the quills externally edged with olive-green.

Tail, rounded, black, the three outer feathers on each side tipped with white, which colour on the outer one of all extends nearly half the length of the feather.

Female wants the steel blue on the throat and forehead, but resembles the male in other respects, except that the general colours are duller.

Length, 4 inches 1 line.

„ of bill, from gape, 8 lines.

„ of bill, from front, 6 lines.

„ of wings, 2 inches.

„ of tail, 1 inch 4 lines.

„ of tarsus, $\frac{1}{2}$ an inch.

The specimens from which the above description is taken, were shot on a Mimosa-like tree, overhanging the sea-beach, where they were very busy among the branches, in company with a great variety of other small birds; they appeared to be hunting some insects, and in their manner and attitudes much resembled our English Tits.*

* In a letter I have received from Mr. Motley since the above was written he thus speaks of this species:—"I think that there is no doubt that this lovely little bird feeds almost entirely on honey: three or four of them frequent all day long a beauti-

Nectarinia Javanica (Horsf.).

„ *lepida* (Temm.).

Above, from the beak to the tail, steel-blue, with purple reflections between the shoulders and on the head, and violet reflections on the lower back and tail-covers; the head and shoulders, when held in particular lights, exhibit greenish reflections.

A patch of dusky oil-green mixed with rufous orange covers the ears, and below this a stripe of brilliant violet extends from the lower mandible to the shoulders.

Below, chin and throat copper-colour; breast bright yellow, becoming lighter towards the tail-covers, which are pale yellow.

Wings, quills, and greater covers, brown edged with oil-green; shoulder and lesser covers, metallic violet, separated from the greater covers by a rufous band, the scapulary feathers dull brown with slight violet reflections at the basal part, and broadly tipped with deep rufous red.

Tail, black, the feathers edged with violet.

Total length, $5\frac{1}{4}$ inches.

Length of bill, from gape, 9 lines.

„ of bill, from front, 8 lines.

„ of wings, 2 inches 7 lines.

„ of tail, 1 inch 10 lines.

„ of tarsus, 8 lines.

„ of middle toe, $6\frac{1}{2}$ lines.

„ of hallux, 6 lines.

We have seen this bird at the south end of Labuan; its movements, as we have also observed in other species of this genus, much resemble those of the English Titmice.

Nectarinia Cingalensis (Gray).

„ *phœnicotis*.

Souimanga oreillon violet (Temm.).

Male; above, uniform brilliant metallic green.

Below, chin, neck, and breast, burnt sienna colour, flanks, belly,

ful plant of *Russelia juncea* just before my office-window, clinging to the slender twigs in all sorts of positions, and turning up the scarlet bells to insert their fairy little beaks: they appear very sociable little birds, never passing one another without putting their beaks together with a little chirp. If any one comes too near, off they go like meteors, but are back in a minute. I think I never saw anything more beautiful than this plant (whose beauty you cannot imagine from green-house specimens): its long pendant twigs are one blaze of scarlet blossoms for months together, with half-a-dozen of these living gems flitting among them. I often sit and watch them, and wish I could place them some fine morning before your window; birds, flowers, broad sunshine and all.”—*I. I. D.*

and tail-covers, yellow ; a patch of lurid metallic purple edged at the lower part with brilliant violet extends from the beak passing below the eyes and over the ears.

Wings ; quills, dusky black, some of the inner ones edged with steel-blue ; covers, metallic green.

Tail ; black, the feathers edged with green.

Female—above, dull green.

Below ; chin, throat, and upper breast burnt sienna colour, but paler than in the male ; from breast to tail yellow.

Wings ; covers dull green, quills dusky black, edged with yellowish oil-green.

Tail ; dusky black, edged with yellowish oil-green.

Length, 4 inches 1 line.

„ of bill, from gape, $6\frac{1}{2}$ lines.

„ of bill, from front, 6 lines.

„ of wings, 2 inches.

„ of tail, 1 inch 7 lines.

„ of tarsus, 7 lines.

„ of middle toe, 5 lines.

„ of hallux, 5 lines.

These birds are usually seen in small flocks, and frequent tall Casuarinas, among which they busy themselves running about, up and down the branches, like Tits ; their note is a shrill chirp ; the stomachs of the specimens we have obtained were completely crammed with the pollen of the Casuarina.

Gen. Dicaeum.

Dicaeum croceoventer (Vigors).

„ *cantillans* (Temm.).

„ *trigonostigma* (Gray).

Barong bunga api (Malay name).

Male—above ; head, nape, and upper back dark grayish blue ; lower back, deep saffron-yellow, mixed with gray, passing into a lighter shade at the tail-covers.

Below ; chin and throat light gray, body and tail-covers saffron-yellow.

Wings ; covers, dark grayish blue, quills black, edged with grayish blue.

Tail ; black, edged with gray.

Female—above ; dull olive-green, excepting the tail-covers, which are dull saffron-yellow.

Wings ; covers, &c., as the back-quills, black, edged with yellowish green.

Tail ; brownish black.

Length, $3\frac{1}{2}$ inches.

- Length of bill from gape, from 5 to 6 lines.
" of bill from front, 5 lines.
" of wings, 1 inch 11 lines.
" of tail, 1 inch.
" of tarsus, $5\frac{1}{2}$ lines.
" of middle toe, $5\frac{1}{2}$ lines.
" of hallux, 4 lines.

These little birds are not uncommon in Labuan, and have something the habits of the English *Regulus*; they haunt low brushwood, and continually utter a low shrill chirp; they are very fearless, allowing themselves to be almost touched before they take to flight; the Malay name, which signifies spark-bird, is very appropriate, as when darting about among the bushes the cock-bird really looks as bright as a flash of fire. The nest of this species is about the shape and size of a goose's egg, and is suspended by the small end from some slender twig of a tall tree; it is built of fine green moss and a sort of brown byssus, and lined with some white fibre and a few small feathers; one of these nests was found on a tree which was felled in the jungle; all the young birds, however, except one, had been killed by the fall; the survivor was brought to Mrs. Motley, who succeeded, by great care, in bringing it up, feeding it at first upon rice and banana pulp; as soon as it was strong enough it was placed in a small cage; though very restless, never being for one moment still, it was perfectly tame and fearless, and would sit upon the finger without attempting to fly away, and though its whole body, feathers and all, might have been shut up in a walnut, it would peck at a finger held towards it with great fierceness: for a long time it would only take food from the hand, but afterwards, when food was given it, it dropped and shook its wings rapidly, as we see a hen Partridge occasionally do. At first, its beak was short, straight, and sharp; but as it grew, its form gradually changed to that of the adult *Dicæums*; it also changed its diet altogether, refusing rice, and only occasionally taking plantain; for some weeks it fed exclusively upon sugar and water, which it sucked up like a Humming-bird; it was very fond of bathing in a large shell full of water placed in its cage.

Dicaeum coccineum.

Certhia erythronota (Latham).

Above ; general colour steel-black ; crown of the head and tail-covers, vermilion-red, which colour, more or less interspersed with black, extends down the centre of the nape and back.

Below ; dusky black ; a longitudinal cream-coloured band extends from the chin to the tail-covers ; flanks under the wing white.

Wings ; steel-black, primary quills, dusky black.

Tail ; steel-black.

Length, $3\frac{1}{4}$ inches.

- „ of bill from gape, 5 lines.
- „ of bill from front, 4 lines.
- „ of wings, 1 inch 10 lines.
- „ of tail, 1 inch.
- „ of tarsus, $5\frac{1}{2}$ lines.
- „ of middle toe, 4 lines.
- „ of hallux, 4 lines.

This species agrees with the description given by Latham of the Red-headed Creeper, excepting that he speaks of it as having “the wing-covers dark green, almost black.” We have only seen one specimen of this bird in Labuan.

Tribe Dentirostres.

Fam. Lusciniæ.

Sub-fam. Malarinæ.

Gen. *Orthotomus*.

Orthotomus sepium (Temminck) (Horsfield).

Above ; back, neck, and tail-covers, lead colour, with an olivaceous tinge.

Below ; lead colour at the chin, becoming lighter towards the belly and tail-covers, which last are dull white.

Head ; forehead and ears chesnut passing into the colour of the back at the hind head.

Wings ; outer edges, light chesnut ; covers the colour of the back ; quills brown, edged on the inner web with lighter brown, and on the outer web with olivaceous green.

Tail ; brown, the feathers faintly marked with black towards the ends, which colour at the extreme tips fades into whitish brown.

Thighs ; chesnut.

Length, $4\frac{1}{2}$ inches.

- „ of bill from gape, $7\frac{1}{2}$ lines.
- „ of bill from front, 7 lines.
- „ of wings, 1 inch 10 lines.
- „ of tail, $1\frac{1}{2}$ inch.
- „ of tarsus, 9 lines.

Length of middle toe, 6 lines.

„ of hallux, $5\frac{1}{2}$ lines.

According to Mr. Temminck this bird is not found in Borneo, and we have only met with one specimen in Labuan; he says that the specimens which he has received from Sumatra differ slightly from those from Java—the bird from which the above description is taken agrees with that given by him of the Sumatra variety.

Sub-fam. Erythacinæ.

Gen. Copsychus.

Copsychus Stricklandii.

Above; back, nape, sides of the head, and forehead, glossy blue black; crown, rump and tail-covers, pure white.

Below; chin and throat black, thence to the tail rufous orange.

Wings; black.

Tail; the centre feathers black, the three outer feathers on each side, pure white, excepting that the inner one of these three has a black stripe running up the inner web.

Bill; black.

Legs and feet; dusky reddish yellow.

Length, 10 inches.

„ of bill from gape, $11\frac{1}{2}$ lines.

„ of bill from front, 9 lines.

„ of wings, 4 inches.

„ of tail, 5 inches.

„ of tarsus, 1 inch 1 line.

„ of middle toe, 10 lines.

„ of hallux, 9 lines.

This species of *Copsychus* is not in the collection of the British Museum, nor have we been able to refer it to any described species. It is very abundant in Labuan, but from its shy habits is rarely seen; its song is superior to that of any English warbler, with the exception of the Nightingale, and in power of voice it surpasses even that. A person walking in the more solitary parts of the jungle is sure to hear it, though it would probably be long before he could detect the musician; the song is like a mixture of that of the Thrush and Nightingale, with occasionally a clear ringing note often repeated; now and then it utters a chatter something like a Magpie, but possibly this is the note of the

female only, as of two which we watched for a long time, suspecting they had a nest, one only uttered this note, and the other occasionally a few low notes like a Skylark when hovering near his nest; it haunts low brushwood, and is seldom seen out of deep jungle; the flight is short but rapid, and on alighting the bird flings up its tail two or three times, and then usually sings a few notes. As far as we have been able to ascertain, the food consists chiefly of insects.

Sub-fam. Motacillinæ.

Gen. Motacilla.

Motacilla cinereocapilla (Gray and Mitchell).

„ *bistrigata* (♀) (Raffles, Lin. Trans.).

Above; body olive-green; head gray.

Below; chin whitish, and thence to tail bright yellow.

Wings; covers the same as the back; quills brown with the outer edges faint yellowish green.

Tail; centre feathers brownish black; the outer feathers on each side, white edged with black on the inner web.

Length, 7 inches.

„ of bill from gape, 8 lines.

„ of bill front, 6 lines.

„ of wings, $3\frac{1}{4}$ inches.

„ of tail, 3 inches.

„ of tarsus, 11 lines.

„ of middle toe, 10 lines.

„ of hallux, 10 lines.

This bird much resembles the English Yellow Wagtail in its habits, frequenting bare ground and short grass, and catching insects by short flights or jumps.

Fam. Turdidæ.

Sub-fam. Formicarinæ.

Gen. Malacopteron.

Malacopteron coronatum ?

Above; from the nape to the tail, olive-brown.

Below; white.

Head; above, chesnut on the forehead, each feather being tipped with rich blackish brown, in those immediately above the beak this tip is very small and narrow; on the feathers of the crown it is larger and broader, while on the hind head the feathers are all of this colour; the small feathers of the ears and round the eyes are light

brown with the shafts of yellowish white, which gives them a bristly appearance.

Wings; light brown, the inner part of the quills being darker than the exposed edges and the rest of the wing.

Tail; chesnut, the feathers of the upper tail-covers are thick and soft.

Length, about $6\frac{1}{2}$ inches.

- „ of bill from gape, $8\frac{1}{2}$ lines.
- „ of bill from front, $7\frac{1}{2}$ lines.
- „ of wings, $3\frac{1}{4}$ inches.
- „ of tail, $2\frac{1}{2}$ inches.
- „ of tarsus, 9 lines.
- „ of middle toe, $7\frac{1}{2}$ lines.
- „ of hallux, 6 lines.

We have two specimens of this species, one of which is rather smaller than the other. This difference is probably due to sex.

In their habits these birds somewhat resemble our European Creepers, excepting that they feed together in small flocks; their food appears to consist entirely of insects, and when feeding they are so intent upon their work as to allow of a very near approach; they haunt low jungle, and are easily recognised by their peculiar flight in lowering themselves, which they effect by flying perpendicularly down. They occasionally utter a low inward song something like that of a Wood-lark before he begins to sing.

Gen. *Pitta*.

Pitta cyanoptera (Temm.).

Above; back green, tail-covers vivid blue, head black, forehead brown, whence a stripe of light brown extends over each eye to the hind head.

Below; raw sienna colour, with the tail-covers and the centre of the belly vermilion-red, upper throat yellowish white.

Wings; above, scapularies green, covers vivid blue, the base of the feathers being blue-green; the base and tips of the primaries black, the centre pure white; the secondaries are black, externally edged with dusky blue at the upper part—the wings below are black with a broad band of pure white.

Tail; black, tipped with dull blue.

Length, $8\frac{1}{4}$ inches.

- „ of bill from gape, 1 inch 3 lines.
- „ of bill from front, 1 inch.
- „ of wings, $4\frac{3}{4}$ inches.
- „ of tail, $1\frac{3}{4}$ inch.

Length of tarsus, $1\frac{1}{2}$ inch.
 „ of middle toe, 1 inch 2 lines.
 „ of hallux, 8 lines.

Not a very common bird in Labuan ; we have occasionally seen them in pairs, keeping about dead felled wood, and moving with a short low flight ; one in which the scarlet was wanting was, probably, the female. It cries loudly and frequently before rain, and is, on this account, called by the Malays Ujan Ujan, "rain rain ;" one which we shot in a mangrove swamp had its stomach full of small shrimps.

Sub-fam. Turdinæ.
 Gen. Turdus.

Turdus modestus (Eyton, Proc. Z. S. 1839).

Above ; uniform olivaceous brown ; greater wing-covers slightly tipped with white.

Below ; belly and tail-covers white, flanks and breast light ferruginous colour.

Eyebrow white ; throat white with longitudinal cinereous spots ; ears, sides of the head, and lower throat, cinereous.

Length, something more than 9 inches.

„ of bill from gape, 11 lines.
 „ of bill front, $8\frac{1}{2}$ lines.
 „ of wings, 4 inches 11 lines.
 „ of tail, $3\frac{1}{4}$ inches.
 „ of tarsus, 1 inch 1 line.
 „ of hallux, 9 lines.
 „ of middle toe, 1 inch.

A small flock of these birds frequented some trees near the north-eastern point of Labuan for several days ; they fed on fruit ; but in other respects, when alive, much resembled the Redwing in habits and appearance.

Fam. Ampelidæ.
 Sub-fam. Dierurinae.
 Gen. Irena.

Irena puella.

Male ; black, crown of the head, nape, back, scapulars, lesser wing-covers, and upper and lower tail-covers brilliant blue, tail-covers long.

Female ; dusky greenish blue ; wings and tail brownish black tinged with the blue colour.

Length, 9 inches.

Length of bill from gape, 1 inch ; from front, 10 lines.
 „ of wings, $4\frac{3}{4}$ inches.
 „ of tail, $3\frac{1}{4}$ inches.
 „ of tarsus, 7 lines.
 „ of middle toe, 9 lines.
 „ of hallux, 7 lines.

This bird is for the most part to be seen only in deep jungle, and is by no means common in Labuan.

Fam. Sturnidæ.

Sub-fam. Ptilonorhynchinæ.

Gen. Calornis.

Calornis Panayensis (Gray).

Lamprotornis cantor (Temm.).

Sulaukir (Malay name).

Black; with green metallic reflections, in some lights showing a tinge of purple; feathers on the head and neck pointed and narrow; bill and feet black; iris brilliant scarlet.

Length, about $7\frac{3}{4}$ inches.
 „ of bill from gape, $10\frac{1}{2}$ lines ; from front, 8 lines.
 „ of wings, 3 inches 9 lines.
 „ of tail, 2 inches 5 lines.
 „ of tarsus, $9\frac{1}{2}$ lines.
 „ of middle toe, 9 lines.
 „ of hallux, 8 lines.

Common in Labuan; and as the jungle is cleared, these birds appear to become more and more abundant. They fly in flocks of a dozen or twenty, and feed on fruit, usually remaining only a few minutes on one tree, then with a loud noisy chatter straggling away one or two at a time to another tree. They also haunt the low brushwood which has sprung up where the jungle has been cleared, and of which the prevailing plant is a nettle-looking shrub, bearing an abundance of small yellow berries; of these they are very fond, and the natives say that when fat upon this diet they are good eating; when feeding, they usually perch very close together. They breed in society; and a colony of them have taken possession of the cliff on the south side of a little bay, in the northern part of the island, where they make holes for their nests in the earth between the rocks; upon the least alarm they all fly out, screeching loudly, but do not go far away; they also breed in the hollows of tall dead trees, and frequently hold a

very noisy meeting upon the highest branches, all chattering at once; the Malays sometimes succeed in teaching them to talk, but their education is difficult.

Sub-fam. Graculinæ.

Gen. *Gracula*.

Gracula Javanensis.

„ *religiosa*, var. β (Latham, Index).

Tiyung (Malay name).

Black, with purple reflections on the fore part of the body and greenish reflections on the lower back and tail-covers; a bar of white extends across the centre of the seven first primaries; the white, however, is upon the inner web only of the first, and the outer web of the seventh; the feathers of the head are short, glossy, and recurved, but parted along the centre of the head by lengthened, narrow, and straight feathers, the skin below the eye is bare; a long yellow wattle extends on each side from the hind head down the nape; bill and feet reddish yellow.

Length, about $12\frac{1}{2}$ inches.

„ of bill from gape, $1\frac{1}{2}$ inch.

„ of bill from front, $1\frac{1}{4}$ inch.

Width, at base of lower mandible, 9 lines.

Depth, at nostrils, 7 lines.

Length of wings, $6\frac{3}{4}$ inches.

„ of tail, $3\frac{1}{2}$ inches.

„ of tarsus, 1 inch 4 lines.

„ of middle toe, 1 inch 8 lines.

„ of hallux, 1 inch 3 lines.

These birds are very noisy, frequently flying at a great height and making a noise like Jackdaws, and sometimes turning over in the air like tumbler Pigeons; in the rainy season they are more noisy than at other times; they build in hollow trees; when young, they are extremely easy to tame, become very familiar, and learn to talk pretty well; hence they are often kept as pets.

Fam. Fringillidæ.

Sub-fam. Fringillinæ.

Gen. *Amadina*.

Amadina sinensis.

Lonchura melanocephala (McClell., P. Z. S. 1839).

Loxia Malacca (Bon., Consp. Av.).

Adult; head, throat, nape, upper breast, centre of belly and lower

tail-covers, black ; rest of the body, wings, and tail, chesnut ; beak lead colour.

Young birds are ashy brown.

Length, $4\frac{1}{2}$ inches.

- „ of bill from gape, 5 lines.
- „ of bill from front, 6 lines.
- „ of wings, 2 inches.
- „ of tail, 1 inch 4 lines.
- „ of tarsus, $6\frac{1}{2}$ lines.
- „ of middle toe, 9 lines.
- „ of hallux, 7 lines.

In Labuan, which is comparatively but little cleared and cultivated, this pretty Finch is rare ; on the main-land of Borneo, however, it is a very common species, and immense flocks of them assemble and often clear a paddy-field in a single day ; when feeding they are never still for a moment, and it is very amusing to watch them hanging on the leaves and stalks of the grass in every possible direction. Their nests, one of which is figured in the accompanying plate, are built in long grass by the sides of streams.

Order Scansores.

Fam. Psittacidae.

Sub-fam. Pezoporinae.

Gen. Palaeornis.

Palaeornis Malaccensis (Vig., Zool. Journ. 1825).

Malacca Ring Parakeet (Selby, Nat. Lib.).

Crown of the head green ; from the bill a broad band of a salmon-red colour passes under each eye, and covers the nape, where it assumes a tinge of delicate lilac colour ; below this again on either side a black band extends from the lower mandible to the side of the neck, where it terminates. Body ; below, light yellow green, above, light blue green, rump light blue, tail-covers bright green. Wings ; scapularies, and covers bright green, quills, inner webs dusky black, very narrowly edged with yellowish white, the outer webs blue edged with green ; the outer quill is all black. Tail ; blueish green above, dull yellow below ; the two centre feathers grayish blue. When fresh, the beak is scarlet and the irides verdigris green.

The long centre feathers are wanting in the young of the year.

Length, about 17 inches.

- „ of bill from gape, 9 lines.
- „ of bill from front, 11 lines.
- „ of wings, $5\frac{1}{2}$ inches.
- „ of tail, $10\frac{1}{2}$ inches.

Length of tail without the two centre feathers, $3\frac{3}{4}$ inches.

„ of tarsus, half an inch.

„ of middle toe, 11 lines.

These handsome birds are not uncommon in Labuan ; and are to be seen in the early morning flying about above the tops of the trees in small flocks of six or eight, uttering in their flight a loud quick scream, very much like the note of the common Swift. They are particularly fond of the fruit of the *Dryabalanops camphora*, which they split open, and eat the curious crumpled cotyledons in spite of their pungent taste and smell of turpentine. The specimen from which the above description is taken, was shot when feeding upon the seeds of the *Dillenia speciosa*, a shrub about ten or fifteen feet high, and it is the only instance in which we have known them venture so near the ground ; when first seen, he was busy opening the capsules of the plant and scraping out the seeds with his beak, never omitting to elip off at a single bite every one he emptied ; having done this, he dropped himself under the twig he sat on, swinging by one leg to watch it fall: when it reached the ground he testified his satisfaction by a low chirp, and giving himself a vigorous swing caught the perch with his other foot, and walked gravely along to another capsule, not hopping but placing one foot before the other in a most old-fashioned way. Another of these Parrakeets, which had been pinioned by a shot without being otherwise injured, was placed in a cage, where, soon finding his two long tail-feathers to be an incumbrance, he deliberately turned round, pulled them out, and then walked round the cage evidently to try the effect of his contrivance.

Sub-fam. Psittacinae.

Gen. *Psittaculus*.

Psittaculus galgulus.

Sapphire crowned Psittacule (Selby, Nat. Lib. 1836).

General colour, bright green ; on the crown of the head is a spot of bright blue, and at the lower part of the nape a crescent-shaped spot of orange colour ; the lower part of the throat and the upper tail-covers, which extend nearly to the tip of the tail, are bright red, each feather being yellow at the base ; the upper part of the wings and tail are green like the general colour of the body, the primary

quills being black on their inner webs ; the lower part of the wings and tail are blue-green, the primaries, however, being here black on the outside and blue-green on the inside.

Length, nearly 5 inches.

- „ of bill from gape, about half an inch.
- „ of bill from front, nearly 7 lines.
- „ of wings, $3\frac{1}{4}$ inches.
- „ of tail, $1\frac{1}{4}$ inch.
- „ of tarsus, 4 lines.
- „ of middle toe, 7 lines.
- „ of hallux, $4\frac{1}{2}$ lines.

Not a common species in Labuan, though very abundant on the main-land of Borneo. In Java they are said to be very destructive to the cane-plantations, and one which we kept in a cage for some time fed chiefly on sugar-cane ; he became very tame, and when his cage was hung out in the verandah a wild one would often come into a neighbouring tree and answer his calls ; the note is a low chirp.

Fam. Picidae.

Sub-fam. Capitoninae.

Gen. Megalaima.

Megalaima versicolor (Gray).

Bucco versicolor (Raffles).

Barbu bigarré (Temm.).

Panggil Panggil (Malay name).

General colour green, darker above than below ; crown of the head scarlet, each feather towards the hind head being narrowly bordered with black at the point ; above the eyes is a stripe of bright blue ; ears and side of the head black, with a small spot of red just below the eyes : below the hinder part of the ears is a large spot of yellow, below which again is another of red ; chin and throat blue ; bill and feet black.

Length, about $9\frac{1}{2}$ inches.

- „ of bill from gape, 2 inches.
- „ of bill from front, 1 inch 7 lines.
- Width of bill at the gape, 1 inch 1 line.
- Length of wings, 4 inches 8 lines.
- „ of tail, 2 inches 8 lines.
- „ of tarsus, barely 1 inch.
- „ of middle toe, 1 inch 1 line.
- „ of versatile toe, 11 lines.

We have not had an opportunity of observing the habits

of these gaudily-coloured birds, as we have only seen one of them in Labuan. The Malay name "Panggil Panggil," means "call call."

Fam. Picidæ.

Sub-fam. Gecininae.

Gen. Hemilophus.

Hemilophus leucogaster.

Picus leucogaster } (Temm.).
Pic à ventre blanc }

Back, tail, wings, neck, breast and throat, black ; crown of the head and hind head red, the feathers on the latter part being lengthened so as to form a crest ; a moustache of the same colour springs from the lower mandible on either side ; the feathers on the breast are tipped with a narrow margin of light brown ; body below yellowish white, which towards the central parts becomes of a reddish buff ; lower tail-coverts black ; the feathers of the thigh are white at the base, then marked with a broad black spot, and beyond that margined with yellowish brown ; the longest primary quills have a small yellowish white spot at the tip on their outer part ; the irides are gray.

Length, about 18 inches.

- " of bill from gape, 2 inches 4 lines.
- " of bill from front, 2 inches 3 lines.
- " of wings, 9 inches.
- " of tail, $6\frac{3}{4}$ inches.
- " of tarsus, 1 inch 4 lines.
- " of middle toe, 1 inch 9 lines.
- " of versatile toe, $1\frac{1}{2}$ inch.

These birds are not uncommon in Labuan, and frequently fly in small parties of six or eight ; they much frequent dead trees, whose bark is just beginning to fall, and are very amusing to watch, being always in motion and very noisy ; they begin rather low down on a tree, moving upwards by jumps with a cry like the chatter of a Magpie to the time of our green Woodpecker's laugh ; perhaps two or three will be ascending one tree at the same time, trying the bark with incessant taps, and wrenching open every likely crack with their powerful chisel-beaks ; when they reach the branches, they hold a sort of discussion of tremendous chatter, and then each takes his own branch, and the bark, here being usually more decayed than on the stem, comes down in showers ; if

you make any loud noise or show yourself suddenly, all disappear in a moment: perhaps one or two may fly off with a swift but laborious action of the wings; but the majority hide behind branches; in a minute or so, if all is quiet, you will see a head peer out from behind some snag, and after looking round and seeing nothing, a croak of satisfaction brings out two or three more heads, but not a body is seen till all the heads are perfectly satisfied of their safety; at last they all come out and chatter together most vociferously for a minute or two before they go on feeding: though apparently so wary, they rarely leave the tree they are examining, even if fired at.

Order Columbar.

Fam. Columbidae.

Sub-fam. Treroninae.

Gen. Treron.

Treron vernans.

Columba vernans (Wagler).

Head and upper throat lead-colour tinged with green; the lead-colour extends down the nape to the back, where it passes into the green of that part; on the nape is a decided tinge of vinaceous red, which is the colour of the neck and upper breast; between this again and the general colour of the lower body is a patch of dark ochre yellow; round the eyes the skin is bare, bordered on the lower side by a black stripe; back, green, tinged with lead-colour; upper tail-covers, greenish ochre; body below, light yellowish green, vent yellow; thighs the same, but the long feathers covering them are varied with green and dark lead-colour; flanks and wings below light lead-colour; wings above green, the covers exteriorly edged with yellow, so as to form a line of that colour extending the length of the wing; quills black, with a very narrow line of yellow on the outer edges; tail, above, light lead-colour, tipped with black; lower covers rufous, as long as the tail.

Length, about $9\frac{1}{2}$ inches.

- ” of bill from gape, 10 lines.
- ” of bill from front, 8 lines.
- ” of wings, 5 inches 4 lines.
- ” of tail, 3 inches 2 lines.
- ” of tarsus, 9 lines.
- ” of middle toe, 1 inch 2 lines.
- ” of hallux, barely 8 lines.

Common in Labuan, and very abundant in the interior of Borneo, where it frequents the fruit-orchards in the evenings,

along with other pigeons; the nest is flat, and formed merely of a few loose sticks, and the only one we have seen was placed in a low thick tree; the young ones, though still blind, were penned—they are said to be fledged very rapidly; the eggs are white: the note is very much like that of our common Wood-pigeon.

Sub-fam. Columbinae.

Gen. *Carpophaga*.

Carpophaga luctuosa.

Columba luctuosa (Temm.).

Rawa Rawa (Malay name).

General colour, cream-colour; ring round the eyes black; primary and secondary quills, slaty black; tail, basal part, the same colour as the body, but below having a rich yellow tinge; the end part is black; the cream-colour extending about half way up the centre feathers, and encroaching farther up each succeeding lateral pair, to the outer ones, where it reaches nearly to the tip, thus forming a fork across the tail; on the two outer pairs, however, the outer edges are black, which colour here encroaches on the basal half; the feathers in various parts of the body have faint black markings.

Length, 15 inches.

- „ of bill from gape, 1 inch 1 line.
- „ of bill from front, 1 inch.
- „ of wings, 8 inches 9 lines.
- „ of tail, 3 inches 10 lines.
- „ of tarsus, 1 inch.
- „ of middle toe, 1 inch 9 lines.
- „ of hallux, 1 inch.

A common species; they feed upon fruit, and especially the various species of figs, which are the favourite food of all the Labuan pigeons; upon this diet they become very fat, and their flesh, though rather hard, is well flavoured, and is particularly esteemed for making curry. They build their nests in high trees, and are said to be easily tamed if caught young; their voice resembles the cooing of a tame pigeon, but is rather more guttural; the Malay name is given on account of their colour, "Rawa Rawa" being the name of a sort of cream-coloured woollen cloth, which is made in China, and fetches a high price in Borneo.

*Order Gallinæ.**Fam. Megapodidæ.**Sub-fam. Megapodinae.**Gen. Megapodius.**Megapodius Cumingii.*

Menamban (Malay name).

Olivaceous brown above; blackish slate-colour with a slight olivaceous tinge, below; the feathers on the throat and nape are thinly dispersed, so as to leave that part nearly bare; on the hind head the feathers are somewhat lengthened, forming a kind of crest; bill black at the base, yellowish towards the tip; legs, feet, and claws black; the bare skin about the head is redder in the cock-bird than in the hen.

Length, from tip of the bill to the end of the tail, about 14 inches.

” of bill from gape, 1 inch 1 line.

” of bill from front, 10 lines.

” of wings, $8\frac{1}{2}$ inches.

” of tail, not quite 3 inches.

” of tarsus, 2 inches 1 line.

” of middle toe, 1 inch 11 lines.

” of hallux, 1 inch 5 lines.

The front toes are nearly equal, the middle toe being rather the longest, and the inner one the shortest.

Some specimens of these birds are in the British Museum, to which they were presented by Mr. Cuming, having been collected by that gentleman in the Philippine Islands. In Labuan they are not uncommon, and are said to be principally confined to small islands, to such more especially as have sandy beaches; they are very rarely to be seen, being extremely shy and frequenting dense and flat parts of the jungle, where the ratans grow, and where the luxuriance of the vegetation renders concealment easy. The Malays snare them by forming long thick fences in unfrequented parts of the jungle, in which at certain intervals they leave openings where they place traps; the birds run through the jungle in search of food, and coming to this fence, run along it till they find one of the openings, through which they push their way and are caught in the trap. In walking they lift up their feet very high, and set up their backs something like Guinea fowls; they frequently make a loud noise like the screech of a chicken when caught; they are very pugnacious, and fight with great fury by jumping upon one another's backs, and scratching

with their long strong claws. Their food principally consists of seeds and insects. The eggs are of a fine dark cream-colour and of a very large size, three of them weighing nearly as much as a full-grown bird. According to the account given by the Malays, each bird lays about eight or ten eggs at each time of breeding, and their nests are merely large heaps of shells and rubbish, deposited over the sandy soil, in which the eggs are buried to the depth of about eighteen inches. Since receiving this account, however, we have had an opportunity of inspecting a very large and perfect nest, or breeding-hill, and found it to be about twenty feet in diameter, and composed of sand, earth, and sticks; it was close to the beach, just within the jungle, and scarcely above high-water mark, and appeared to have been used for many years. The boatmen seemed to have no clue to what part of the hillock contained eggs, but said that they were never without some, when frequented at all; they sought for nearly half an hour in vain before they found one, and then they got about a dozen together; they were buried at a depth of from one to three feet in an upright position, and the ground about them was astonishingly hard. The eggs thus deposited are left to be hatched by the heat of the sun, and this, the Malays assert, requires between three and four months to complete: those obtained from this heap were brought home and buried in a box of sand, and a month or two afterwards it was discovered that they had all hatched, but that from neglecting to place them in a proper (*i.e.* probably an upright) position, the chicks could not get up through the sand, and had all perished. When hatched, the chicks are almost entirely fledged; even the long quills being, as the Malays say, "needled." When first dug out, some of the eggs had lost much of their outer colour, which appeared to have scaled off, leaving only a white chalky shell. On a former occasion some eggs were brought by the natives, and were buried in a box of sand and exposed to the weather: at the end of about three weeks one of the chicks was hatched; a Malay who saw it emerge, said, that it just shook off the sand and ran away so fast that it was with difficulty caught; it then appeared to be nearly half-grown, and from the first fed itself

without hesitation, scratching and turning up the sand like an old bird. Two more afterwards emerged in the same state. Their eggs are held in such high estimation as food both by natives and Europeans, that one cannot but fear that these interesting birds, though now so abundant, will ere long become scarce.*

Order Grallæ.

Fam. Ardeidae.

Sub-fam. Ardeinae.

Genus Ardea.

Ardea purpurea.

„ *caspica* (Latham).

Crown of the head black with a pendant crest of the same colour; chin white, sides of the head reddish fawn colour; beak, brownish yellow; skin round the eyes bare; a black patch springs from the gape on either side, and divides itself in two, one part passing over the ears to the nape, and the other extending in a line down each side of the neck to the lengthened feathers at its base; a third black line runs down the back of the neck for about two-thirds of its length; above the side black stripes, the general colour of the neck is reddish fawn, and below them dark chesnut; back, light slaty gray, with olivaceous reflections; the colour of the back reaches up the upper side of the neck about a third part of its length; the elongated scapulary feathers are chesnut at the ends; the elongated feathers at the base of the neck below, are varied with white, black, fawn colour and gray, breast and belly deep rich maroon, and purplish black in the centre; the vent and tail-covers are also black, the feathers of the latter part being more or less white at the base; flanks gray, lower wing-covers and shoulders chesnut; thighs chesnut; wings and tail the same general colour as the back, the quills, however, being somewhat darker.

Length, from the crown of the head to the tip of the tail, 2 feet 11 inches.

„ of bill from gape, 6 inches 9 lines.

„ of bill from front, 5 inches 8 lines.

„ of wings, $14\frac{1}{2}$ inches.

„ of tail, $5\frac{1}{2}$ inches.

„ of tarsus, 5 inches 5 lines.

„ of middle toe, 5 inches 2 lines.

„ of hallux, 3 inches 5 lines.

Outer toe longer than the inner one.

We have only seen this bird once in Labuan; the speci-

* Much of the above notice of the habits of the *Megapodius* is taken from a paper read to the Zoological Society in 1851, by L. L. D.

men from which the above description is taken was shot among some tall sedge up a river near Brunai.

Ardea garzetta (?).

Kanawy putih (Malay name).

Young—white; some of the feathers on the neck, and a few on the lower parts of the body, especially about the lower covers and thighs, are irregularly marked, and speckled with brownish black; this, however, appears to arise from the specimen being in immature plumage, as in some places, over one ear, for example, there is a decided patch of this colour, while the other ear is pure white; the long feathers of the crest are also wanting, showing that the bird is not in full plumage; beak black, except the basal half of the lower mandible, which is yellowish white; tarsus black; feet greenish black.

Length, from the tip of the bill to the tip of the tail, 22 inches.

- " of bill from gape, 3 inches 9 lines.
- " of bill from front, 3 inches.
- " of wings, $10\frac{1}{2}$ inches.
- " of tail, 3 inches 10 lines.
- " of tarsus, 4 inches.
- " of middle toe, 2 inches 11 lines.
- " of hallux, 1 inch 8 lines.
- " of thigh bare above the knee joint, 2 inches 2 lines.

Besides the Malay name given above, these Egrets are commonly called "padi birds," from their frequenting the rice-fields; they feed on the mud left by the tide, running about very fast with their heads down: they roost together in large numbers on trees, and are said to build in high jungle, though from the following specimen of Malay superstition, which, though perhaps rather out of place in a work on natural history, from its poetical character and its resemblance to the fairy legends of our own country we are induced to insert, it would appear that their nests are not easily found, or often seen; the legend was translated from the Malay language by Mr. Motley, and is almost in the very words in which it was told him. It runs as follows:—

"It is said that but one mortal has ever seen the nests and eggs of the Kanawy putih, for they do not, like other birds, breed in the swamps and jungle of our visible world, but about the houses of certain happy invisible beings called the Orang Ka-benar-an or 'people of truthfulness.' They are a race of

sylvan spirits, whose care is to preside over the seasons of flowers and fruit, and were formerly allowed to mix and associate with mankind, leading them through jungles when benighted, and teaching them also the art of husbandry, which they too practised themselves, sowing over ground already sown, and reaping and carrying away their own produce before the padi was ripe, leaving behind for the fortunate cultivator to whose clearing they took a fancy, a more than usually plentiful crop. But the great Mahomet came, and all the angels of heaven, except the rebel Eblis, followed and protected the spread of his faith: now Eblis and his wicked ones saw in heaven none whom they could call to their assistance to crush the Holy and Mighty Prophet, so he went to the simple spirits of the groves, and said to them, 'Behold, the great Allah is unjust to you, Orang Ka-benar-an; are ye not spirits, even as the angels, who fly upon the winds? ye must not remain among the silent woods any longer; behold, I have defeated the Lord Allah, and now ye shall be angels like the rest.' And the foolish spirits believed the words of the tempter, and they fell down before him and called him the great and mighty King Eblis. But as their hearts became great there came an angel called Zaliel, from whom Eblis fled away afraid, and he said unto them, 'Oh, foolish spirits, you have made a prayer unto that evil Jin Eblis, and the Lord Allah has sent me to punish you; and this is your sentence; behold the beasts and the birds, and the men whom you love, shall see you no more, and your houses and your fields shall become invisible for ever, and ye shall never go again among the houses of men.' And when they wept bitterly at this punishment the angel relented, and he said, 'Choose, then, one bird which may see you and live in your houses, and bring up its young among your children.' So they considered, and one wished to choose the Eagle, because, said he, 'He soars high and sees far, he will bring us much information:' but another said, 'No, he is a pirate-bird, and destroys others whom we also love; let us choose the great Pigeon, for he sits on high bare branches in people's gardens, and he will bring us news of all their doings:' but another said, 'No, for he eats and destroys the fruit which we love, before it is ripe; let us

choose the Kanawy, for he stands by the river-side and watches the canoes, and so we shall always know when and where our friends are going'” (it must be remembered that rivers are the only roads in these countries). “So when the angel saw how they loved mankind, he gave them the Kanawy, and granted them still farther, that if ever a man benighted in the jungle should lie down to sleep within the fence of their invisible village, they should have for four days the privilege of making themselves visible to him, and of entertaining him in their houses, but he bid them beware of giving their visitors the eggs of the Kanawy; and so the angel departed. Now, after this, men wondered much what had become of the friendly spirits of the woods, but as no one happened to fall asleep in the charmed ground, it was many, many hundred years before it became known, and thus it happened: there was a certain Rajah who studied magic, and to do so more conveniently he used to wander with his books in the jungles, and one night as he crossed the village of the Ka-benar-an he sat down under a teak-tree, and fell asleep. Instantly he found himself among the friendly spirits, who caressed him in every way, and beat gongs, and sang pantuns* (Malay poetry), and did everything to testify their delight at being again visible to a mortal. They dressed him in silk sarungs and salendangs (different kinds of waistcloths), gave him a kris covered with gold and jewels, and the most beautiful maidens brought him luscious fruits and choice sweetmeats, and offered him betel and cigars; and so three days passed away, but at the end of the third day the ungrateful Rajah grew tired of his fair companions, and their delicate dainties, and asked for rice and salt-fish: rice they gave him in abundance, but salt fish they had none, so he asked for a fowl's-egg, but they had no fowls: then he turned his eyes upon the beautiful white birds walking about the house, and said, ‘Give me the eggs of the

* Pantuns.—Mr. Crawford in his “Grammar of the Malay Language” gives the following account of this kind of poetry: “The pantun is, even among the islanders of the Archipelago, peculiar to the Malays. It is a quatrain stanza, in which the alternate lines rhyme, or in which all the lines rhyme together. The two first lines contain an assertion or proposition, while the two last purport to be an application of it.”

Kanawy ;' but they spoke to him gently, and said, ' No, we cannot give them, the Lord Allah has forbidden it.' Then the Rajah grew angry, and said, ' I, too, am a great king,' and he climbed up to the nests of the Kanawys under the rafters of the house, and looked into the nests where the eggs shone like large emeralds, and he put his hand out to take them, and behold—he was in the forest, alone, under the teak-tree, and the houses and the beautiful maidens with the champaka flowers in their hair had vanished, and the beautiful white-birds were flying screaming away to the river; and the Orang Ka-benar-an considered, and said, ' The Lord Allah has been very kind to us, in giving us four days of the society of the mortals whom we may find in our village, but this is too long, and if by chance one succeed in taking the eggs of the Kanawy we shall fall under his displeasure; we will, therefore, in future keep our visitors for three days only; ' and since that time many mortals have been admitted among the Orang Ka-benar-an, but at the end of the third day they have always been awakened where the first lay down, by the last sounds of the music and voices of the invisible people dying slowly away in the rustling of the wind among the tops of the jungle."

REPTILIA.

Order Saur.

Sub-order Leptoglossæ.

Tribe Cyclosauræ.

Family Monitoridæ.

Genus Hydrosaurus.

Hydrosaurus Salvator (Gray, Cat. Brit. Mus. p. 13).

Varanus bivittatus (Dum. and Bib.).

Biawak (Malay name).

Colour—upper parts black ; the back irregularly speckled with yellow, a few ocellated spots of the same colour occurring here and there ; on the tail the yellow markings are arranged so as to form transverse bands at irregular intervals, and towards the tip become distinct rings embracing the whole circumference of that part of the tail—the lower parts are yellow ; above the line where the black and yellow of the upper and lower parts meet, the black is varied with large distinct ocellated spots of yellow, between which black lines extend at regular intervals towards the centre of the belly ; below the throat and chin some of these lines meet below—the muzzle is yellow, with a transverse black band between the nostrils and the tip. The outer skin of the specimen we have taken the above description from, and which is preserved in spirits, has in a great measure peeled off, leaving the prevailing colours of the animal black and white ; when fresh killed, however, they were black and yellow.

Size and measurements—the nostrils are placed a third part of the way from the tip of the muzzle to the front corner of the eye.

Total length, 2 feet 2 inches.

Length from the tip of the muzzle to the base of the tail, 10 inches.

„ of head, from the tip of the muzzle to the ear, 1 inch 10 lines.

„ from the tip of the muzzle to the anterior corner of the eye, 1 inch.

On the feet, the fourth claw is the longest.

These Lizards are not uncommon in Labuan, sometimes attaining the length of five or six feet, and in some Malay countries they are called Buaya diderat or “Alligator ashore.” When large they are very destructive to fowls, and when

they once get a habit of coming to a poultry-yard destroy and carry them off without noise. They appear to be exclusively carnivorous, and we have seen one of them follow and hunt a rat with great eagerness: they usually inhabit hollow trees or holes in rocks; we have occasionally seen them in holes in trees at a very great height from the ground. They are common among rocks near the beach, and in impenetrable thickets of Pandan in mangrove creeks, whence they come out to bask in the sand or mud. When wounded they display great tenacity of life, and bite most furiously when caught. The flesh is much esteemed by the natives for its supposed restorative and invigorating properties, and when curried it much resembles chicken. At Manila these creatures are regularly sold in the markets, and fetch a good price: the dried skin is readily bought by the Chinese, who use it in some of their indescribable messes of gelatinous soup.

Tribe Geissosaura.

Fam. Scincidae.

Genus Tiliqua.

Tiliqua rufescens (Gray, Cat. Brit. Mus.).

Euprepes Sebae (Dum. et Bib.).

Carroong (Malay name).

Colour—olivaceous brown above, passing into a very light shade of the same colour beneath; the scales on the back are slightly edged with blackish brown on the lateral margins, forming faint longitudinal dark lines; on the sides these lines are more distinct, and some of the scales are whitish brown on the central part, giving a more prominent appearance to the dark lines; on the upper surface of the limbs the dark colour passes round each scale, giving them, one with another, a reticulated aspect.

Scales on the back have three distinct longitudinal ridges; these become faint on the side-scales, and those on the belly are quite smooth. Ears rounded, open. Tail long, and very tapering.

Total length, 1 foot.

Length of tail, $7\frac{1}{2}$ inches.

„ of fore leg, from junction of body to end of the longest toe, 1 inch $2\frac{1}{2}$ lines; the third and fourth toes are longest and equal.

„ of hind leg, to the end of the fourth toe (which is the longest), 1 inch $9\frac{1}{2}$ lines.

„ of head, from ear to end of muzzle, $9\frac{1}{2}$ lines.

„ of anterior corner of eye to end of muzzle, 4 lines.

Extremely common everywhere in the woods under dead wood, stones, &c., and occasionally descending to the beach at low water. They may be seen all day basking in the sun, but from their activity are not easy to approach. They swim well and rapidly, with the head high, but dive when alarmed.

Sub-order Pachyglossæ.

Tribe Nyctisaura.

Fam. Geckotidæ.

Gen. *Platyurus*.

Platyurus Schneiderianus (Gray, Cat. Brit. Mus.).

Hemidactylus marginatus (Dum. et Bib.).

Colour—sandy gray above ; whitish beneath.

Total length, 3 inches 10 lines.

Length of tail, 1 inch 8 lines.

„ of ear to end of muzzle, 6 lines.

„ of eye to end of muzzle, 3 lines.

Nostrils placed very near the end of the muzzle. The head from above has a very eel-like appearance.

Skin granular—below, small scales ; a series of large transverse scales extends along the middle of the whole length of the lower side of the tail.

Caught in a hollow tree in the jungle.

Gen. Gecko.

Gecko monarchus (Gray, Cat. Brit. Mus.).

Platydictylus monarchus (Dum. et Bib.).

Colour—above ; light brownish gray, with dark spots and markings along the line of the vertebrae, head also spotted—below ; whitish brown.

Body—above ; covered with small granular scales, and thickly studded with conical tubercles—below ; covered with smooth scales.

Total length, $6\frac{3}{4}$ inches.

Length of tail, $3\frac{1}{2}$ inches.

„ of ear to end of muzzle, 9 lines.

Greatest width of head, 7 lines.

Not uncommon.

Tribe Strobilosaura.

Fam. Agamidæ.

Gen. *Dracon*.

Draco volans (Gray, Cat. Brit. Mus.).

Draco Daudinii (Dum. et Bib.).

Var. A.—Colour—above; coppery brown, mottled in different shades—below; whitish brown, with a metallic gloss, blueish gray down the centre of the belly; the chin and, in some specimens, the flanks being faintly marked with transverse dark mottled lines; when fresh, the flying membranes or wings are brilliant crimson; this colour becomes dull orange-red in specimens preserved in spirits; the wing is fringed at the outer edge with brown, within which is a margin of large black spots; the surface of the membrane is also transversely spotted with black. On the head, between the eyes, is a large rounded black spot, and on the nape is an oval spot of the same colour; three fainter and smaller spots also occur about half way down the neck in a transverse position.

Var. B.—Instead of the brown colour with which the former variety is marked, this *Draco* is mottled with light and very dark green, the markings also being more distinct.

In the brown varieties the pouches on the sides of the throat are marked and prominent, while below the throat the pendant pouch is wanting, the skin being merely enlarged and wrinkled. In the green variety the lateral pouches are as in Var. A. and the gular pouch is very large, pendant and pointed, and of a yellow colour. Tail very slender.

Both the varieties agree in their comparative dimensions, and the dimensions of one (Var. B.) are as follows:—

Total length, 7 inches $2\frac{1}{2}$ lines.

Length of tail, 4 inches 4 lines.

„ of ear to end of muzzle, 6 lines.

The gular wattle depends from the throat, 6 lines.

These beautiful little Lizards are frequently met with in Labuan, and sometimes keep together in companies of six or seven. When on the wing they might also be almost mistaken for large butterflies; though they move their wings, however, their flight never rises, but is always to a lower point. They rest upon the trunks of trees, tail downwards, and while at rest the yellow fold of skin under the throat is frequently inflated, giving them a very odd appearance. The Malays are much afraid of them, believing them to be venomous, and assert that they will bite men in the back of the neck, causing death.

Gen. *Gonyocephalus*.

Gonyocephalus chameleontina (Gray, Cat. Brit. Mus.).

Lophyrus tigrinus (Dum. et Bib.).

General colour—above ; rich olive-brown—below ; brownish yellow ; tail broadly banded with these colours ; upper parts of the limbs slightly banded.

Total length, $17\frac{1}{2}$ inches.

Length of tail, 12 inches.

„ of ear to the end of the muzzle, 1 inch $4\frac{1}{2}$ lines.

„ of nostril to the end of the muzzle, $3\frac{1}{2}$ lines.

We have sometimes seen these Lizards three feet long. The European residents in Labuan call them Chameleons : the flesh is occasionally eaten by the Chinese, and is said to be white and good. They run very quickly with the joints of the legs very high, which gives them an odd, grasshopper sort of appearance. Their natural haunts appear to be chiefly among hollow fallen trees, but when pursued they run up the trunks of standing trees with great facility, resting with the head upwards. Dogs will hunt them with eagerness, and they appear to leave a strong scent.

Gen. *Bronchocela*.

Bronchocela cristatella (Gray, Cat. Brit. Mus.).

Colour variable ; when alive, upon being startled, the animal changes from a bright grass-green to brown and gray ; the specimens we have preserved in spirits are green, with more or less of a metallic violet gray lustre—below, the colours are light.

Scales on the belly and below the tail, deeply keeled, and more than twice the size of those of the upper parts.

Total length, 18 inches 3 lines.

Length of tail, 13 inches 9 lines.

„ of ear to the end of the muzzle, 1 inch.

These Lizards are not uncommon, and are very frequently seen in pairs, haunting leafy shrubs and trees, among which they principally live ; they may sometimes be seen sitting upon the twigs with their backs up like frogs, and occasionally taking very long leaps from branch to branch : when on the ground they run very swiftly.

Order Ophidia.

Fam. Crotalidae.

(Gen. *Trimesurus*.)

Trimesurus maculatus (Gr.).

Green above, with a single series of small white spots, rather distant from each other, extending on each side of the vertebræ along their whole length. Abdominal scuta yellowish. Temporal streak double, the upper part being white and the lower part rufous; end of tail light rufous yellow, curled.

Length of the largest specimen we have obtained :—

Length from muzzle to vent, 14 inches	} 16½ inches.
" of tail beyond, 2½ inches	

Width at gape, fully 7 lines.

These snakes are not unfrequent in Labuan, and may sometimes be seen basking on roots of trees in the sun, and enjoying the warmth. When struck or wounded they bite most savagely at the stick, or whatever may be used in attacking them.

Trimesurus subannulatus (Gr.) (var. ?).

Green above, with thirty-six cross-bands from head to vent, which are continued on the tail, but become indistinct towards the tip; the anterior part of these bands is white, and the hinder part dark green; they extend across each side from the vertebræ, where they nearly meet, almost to the abdominal plates; the temporal streak reaches from the nostrils to the hinder angle of the head, and is white above, and dark green below. Colour below—yellowish white, the scuta posteriorly margined with dark green; most of the scuta are also marked on their hinder edges with irregular spots of dark green, but lighter in the centre than towards the edges.

Length from muzzle to vent, 1 foot 11½ inches	} 2 feet 4½ inches.
" of tail beyond, 5 inches	

Width of head at gape, 1½ inch.

We have marked this species as a variety of the *Trimesurus subannulatus* of Mr. Gray, as in our specimens the dark edging of the rings which he describes in that species as being situated in front of the white is behind that colour. These are, however, probably mere varieties in colour, and, indeed, in one specimen which we possess, the relative position to one another of the white and dark colour of the rings is not quite constant.

It is a common species in Labuan, and the Malays hold them in great dread—so much so, that twenty or thirty of them were completely put to flight by the appearance of the specimen from which the above description was taken, and which

was disabled by a Bengalee, who seemed to have much less fear of it, stating that he had a remedy for its bite: what it was, however, he would not communicate. After its back was broken it bit fiercely at everything within its reach, striking its formidable poison-fangs into sticks with great force. A Malay stated that he had known an instance in which a man died in three hours after being bitten by a large one: he, however, said that the bite was not usually mortal, but producing only violent vomiting, fever, delirium and long continued stupor. They are very sluggish animals, never attempting to move out of the way, but infallibly striking if anything approaches within their reach. Their favourite posture is to lie upon a small twig in a complicated irregular fold, and so closely do they resemble a twig of green leaves, that even when pointed out by the natives, it is often a long time before an inexperienced eye can make them out. Upon Burong Island to the south of Labuan, which is an amorphous mass of limestone of an area of perhaps five acres, and covered with jungle, they are especially abundant.

Fam. Coluberidæ.

Gen. Elaps.

Elaps furcatus (var.).

General colour—rufous cream colour, much lighter below than above: a deep brown longitudinal stripe runs along the whole length of the vertebræ; a pair of similar stripes run parallel to this at about the distance of the width of two scales; each of these again is margined by a third narrow stripe of the same colour, which passes along just above the line of the abdominal scuta; on the belly and lower part of the tail a series of broad blackish transverse bands occur at nearly regular intervals; these are forty-one in number, thirty-nine being upon the abdomen and two upon the tail.

Scales smooth; fangs long; no teeth in the upper jaw; palate furnished with teeth; body long and nearly of an uniform size and shape; tail short and tapering.

Abdominal scuta, 238.

Subcaudal scuta, 24.

Found in Labuan. When fresh, the markings were very elegant; red, black, and white being the prevailing colours: they soon faded, however, upon the animal being put into spirits.

Gen. *Dendrophis*.

Dendrophis paradisei (?).

Colour—above; the plates of the head are banded with transverse irregular black markings, the ground colour being yellowish brown, darker towards the muzzle than at the occiput. From the head a line extends down the centre of the back, the scales of which are greenish yellow margined by black; on each side of this line the scales are of a deep olivaceous colour, similarly margined with black; at some distance from the head the dark sidal colour becomes less distinct, and towards the centre of the body assimilating with the lighter colour of the vertebral stripe: at this part, and on, nearly to the tail, the scales, in addition to the black margin, have a central black spot; the lower parts are light greenish yellow, with pale brownish black transverse lines across the hinder edges of the scuta. Muzzle blunt and rounded; head shielded; upper jaw toothed; fangs none; body and tail very angular, and the lower surface quite flat; the angle on each side forming a prominent ridge.

Abdominal scuta, 229 }
Subcaudal scuta, 134 } 363.

Length from muzzle to vent, 3 feet 1 inch }
" of tail beyond, 1 foot 2 inches } 4 feet 3 inches.

The only specimen we have obtained of this species was killed in Labuan by Mr. Motley, and when first seen by him was clinging in a most extraordinary manner upon the trunk of a large tree, head downwards, and without any visible means of supporting itself. He took up a stick and attempted to kill it, but failed: it then came down and climbed up another small tree with wonderful speed. He afterwards got a gun and shot it.

Dendrophis picta (?).

Colour—above, light ochreous brown, below, yellowish white; on each side a broad black stripe runs along the whole length of the body, covering the upper angles of the abdominal scuta, and the lower part of the adjoining scale; another narrower line runs parallel to, and at the distance of a scale's breadth above, this. Between these two lines the colour is that of the abdomen, and above the upper one the light brown of the back commences; two more pair of similar parallel black lines, but much narrower, extend along the back; these black stripes are the most distinctly marked towards the posterior part of the body. On the tail they are very distinct, but diminish in number, and towards the tip only the two largest lateral and

one vertebral remain ; besides these, however, a black stripe runs along the under side of the tail, at the point where the double scuta meet.

Body elongated, tail very slender and tapering ; abdomen angular ; scuta very broad ; eye large and orbicular.

Rows of scales, 13.

Abdominal scuta, 186.

Subcaudal scuta, 100.

Length of muzzle to vent, 3 feet $1\frac{1}{2}$ inches }
 „ of tail 1 foot } 4 feet $1\frac{1}{4}$ inches.

Found in Labuan.

Gen. Dryiophis.

Dryiophis prasina.

Ular bunga, flower snake (Malay name).

Green above ; pale greenish yellow below ; a narrow stripe of a light yellow colour extends along each side of the body, passing through the abdominal plates just below the angle, where they meet the scales of the body.

Form lengthened and very slender, angular ; both jaws toothed ; two teeth much longer than the rest occur on each side in the upper jaw.

The number of the abdominal scuta appears to be very variable, as in three specimens which we have examined the following are the results :—

	Length to Tail.	Length of Tail.	No. of Abdo- minal Scuta.	No. of Sub- caudal Scuta.
Largest specimen	3 ft. 6 in.	1 ft. 10 in.	224	179
Next ditto	3 ft. $1\frac{1}{2}$ in.	1 ft. 8 in.	228	198
Smallest ditto	3 ft. 6 in.	1 ft. $6\frac{1}{2}$ in.	234	189

This is a common species in Labuan, and is sometimes kept alive as a pet both by Europeans and natives. It haunts the thicker parts of the jungle where there is much low wood, and is very active ; and from its long and graceful form and the beauty of its pea-green colour relieved by the yellow stripe, its movements are very elegant. It is fond of basking on the fallen trunks of trees.

Gen. Dipsas.

Dipsas dendrophila (Schl.).

General colour—above ; rich brown black, with from eighty to ninety transverse bands of rufous yellow on each side ; these are narrow at the upper part, and either quite or nearly meet at the

vertebræ; they become broader towards the abdomen, on the scuta of which they extend a short way, terminating in broad rounded ends; the abdominal scuta are dull brownish green: some of these scuta just below the head are yellow, margined with black; the labial plates are also yellow, transversely banded with black, in a vandyk pattern.

Rows of scales, 21.

Abdominal scuta, 236.

Subcaudal scuta, 61.

Length from muzzle to vent, 4 feet 5 inches } 5 feet $1\frac{1}{2}$ inch.
 „ of tail, $8\frac{1}{2}$ inches

This specimen was obtained in Labuan, and was knocked down from the branches of a tree overhanging the sea-beach, among which it was coiled.

Dipsas fusca.

Colour—above; light brown, mottled and speckled with black or deep brown; these markings are for the most part arranged so as to form indistinct transverse rib-like bands along each side; below—buff, speckled with deep brown; a series of patches of the same colour occurs along each side of the abdominal scuta, very distinct towards the head, but indistinct towards the tail; the upper surface of the head is brown, richly marked with ocellated spots of different shades of the same colour; labial plates ochre yellow, the upper ones transversely marked with deep brown or black.

Body, elongated and much compressed at the sides, so as to be almost riband-shaped; tail long, rounded, slender, and tapering; the transition from the compressed form of the body to the rounded tail is very sudden and marked; eyes large, circular, prominent; nostrils large, open in front.

Rows of scales, 21.

Abdominal scuta, 240.

Subcaudal scuta, 140.

Length of muzzle to vent, 2 feet 6 inches } 3 feet 4 inches.
 „ of tail, 10 inches

Found in Labuan, where it was killed in the jungle. It somewhat resembles the description given of *Dipsas monticola* by Dr. Cantor, but differs in some respects, especially in the number of abdominal and subcaudal scuta. We have not, however, had an opportunity of inspecting the *D. monticola*, nor have we been able to find any other description of a similar serpent. We have, therefore, given the present species the provisional name of *Dipsas fusca*.

Gen. Calamaria.

Calamaria brachyorrhos (?) (Schl.).

Colour—uniform brown, except the central part of the abdominal scuta, which is brownish yellow, crossed with bands and semi-bands of brown at irregular distances; towards the throat these transverse bands are wanting.

General form, thick, rounded; head small, short, and narrow; no fangs, teeth in jaws and palate; tail blunt, short, and thick; scales smooth, uniform; no dorsal line of large scales.

Rows of scales, 19.

Abdominal scuta, 172.

• Subcaudal scuta, 36.

Length from muzzle to vent, 2 feet 5 inches	} 2 feet 9½ inches.
„ from tail 4½ inches	

When fresh, this snake was of a dark gray colour. It was killed in Labuan by Mr. Motley, whose attention was attracted by a rustling among the dead leaves on the path, when coming up from his boat one fine moonlight evening: to his surprise he perceived this snake, which faced him and occupied the middle of the path, making repeated incipient springs towards him.

ADDITIONAL NOTES.

MAMMALIA.

Order Quadrumana.

Fam. Lemurida.

Gen. Loris.

Loris tardigradus (Linn.).

Stenops tardigradus.

Slow-paced Lemur.

Kokong (Malay name).

Fur thick and soft, of a chesnut colour, mixed in some parts with silvery gray; below, the colour is much lighter than that above, and the gray predominates; the forehead is white, with a ring of dark chesnut round each eye; a line of this colour extends from the eye to the upper head and meets there, thence again extend three band-like markings, one down the back and the others over each ear; the eyes are remarkably large, soft, and stupid in their expression.

Length from the nose to the tail (which is almost rudimentary), $11\frac{1}{2}$ inches.

Length of nose to ear, 2 inches.

" of nose to anterior corner of eye, 10 lines.

" of fore leg, $4\frac{1}{2}$ inches.

" of hind leg, $5\frac{1}{2}$ inches.

The first finger of the hind foot is furnished with a long claw.

These animals, though very common on the main-land of Borneo, are rare in Labuan; the natives of Borneo frequently keep them as pets, feeding them on rice, fruit, and other vegetable products; they are, however, very fond of milk and blood, and sometimes, when in confinement, kill fowls; during the day they can hardly be aroused, but at night become very active, climbing about most nimbly; when kept in a cage, they sleep rolled up in a ball, and holding on to the bars with one or two of their hands. One, however, which was seen by Mr. Motley in a tree at Brune, apparently asleep, was hanging

under a branch. In grasping a branch, the fore-finger of the hinder foot, or hand, goes with the thumb, like a parrot's foot. This arrangement of the fingers is very discernible in fresh specimens, but in the dried limb it does not appear.

Order Edentata.

Fam. Manina.

Gen. Manis.

Manis Javanica (?).

Pengoling (Malay name).

Covered with scales, except the lower parts of the head, the throat, the belly, and the inner sides of the legs, which parts are thinly covered with scattered brownish yellow hairs; a few bristly hairs also appear here and there projecting beyond the scales.

There are 15 rows of scales on the body, and 29 marginal scales on the tail.

The scales on the back are large, rather rounded, and broad at the tip, they are striated at the base, and smooth at the end. The scales below the body are narrower and more pointed, they are also striated and carinated.

Length from tip of the nose to the end of the tail, 2 feet 3 inches.

" of the tail, 11 inches.

Breadth of the under surface of the tail at the base, 2 inches 10 lines.

Length from ear to tip of nose, $2\frac{1}{2}$ inches.

" nose to eye, barely 1 inch 7 lines.

" eye to ear, 9 lines.

The eyes are placed below the line of the scales on the head at about the distance of 3 lines.

The Malay name "Pengoling" signifies an animal rolling itself up, which this creature occasionally does, presenting only its impenetrable scales. It inhabits hollow trees, and feeds on ants alone, of which its stomach contains thousands; it is a slow-moving animal, but very strong, and by means of its powerful prehensile tail, which is furnished with a little naked callosity, climbs tolerably well among rocks and dead trees; the tongue is excessively long, round, and fleshy, and is used to obtain its food by being laid across the tracks of ants, which stick to a glutinous secretion with which it is provided; its favourite prey is said to be a black species of *Termes*, which is the chief agent in destroying dead-wood in Labuan, and whose colonies are extraordinarily numerous. The individual from

which the above description is taken, is a half-grown one, and was obtained when alive, by Mr. Motley. Having, however, at that time, no means of keeping it, he determined to destroy it for a specimen, and he accordingly got a native to administer to it one of his little poisoned darts, from the sumpitan or blowpipe; the dart, which had apparently been dipped in some black juice, entered the skin of the belly about a quarter of an inch, and in a quarter of an hour the creature was dead. It died very quietly, having gradually ceased to move about, and then lay for three or four minutes in a state of torpor; after which, death came on with a very slight tremor, passing of the fæces, and protrusion of the tongue. On dissection, the aorta and the large artery leading to the strong muscular tail were gorged with dark venous blood, as was also the left ventricle; there was no arterial blood to be seen anywhere, and indeed very little in any other part of the body, except in the air-cells of the lungs, where a number of vessels were ruptured; all the vessels of the head and brain in particular, were perfectly empty and collapsed; the diaphragm was most strangely contracted and corrugated. This took place on board a vessel, and when Mr. Motley stuffed it, the Javanese sailors asked for the body, and ate it, after skinning it. Upon the skin being washed with corrosive sublimate, a vast number of large flat ticks emerged from under the scales.

AVES.

Order Passeres.

Tribe Coniostres.

Fam. Bucerotidæ.

Gen. Buceros.

Buceros convexus (Temm.).

„ *pica* (Bonaparte consp. av.).

Above, black ; below, throat, breast and sides, black, belly and lower tail-covers white ; wings black, the outer edges, just above the base of the primary quills, white ; the two first primaries black, the rest black tipped with pure white ; the two centre feathers of the tail black, all the rest pure white ; thighs white, legs and feet black ; bill yellowish white, the margins black, the point of the upper mandible is also black, which colour extends along the upper ridge to the casque or horn, the anterior part of which is irregularly marked with the same colour on the upper surface ; the base of the lower mandible is black ; skin round the eyes, at the base of the lower mandible and on the upper throat, black and bare of feathers except a narrow line of black feathers which separates the part round the eyes from that below ; a similar line of black feathers also occurs down the centre of the upper throat.

Total length, about 2 feet.

Length of wings, 1 foot.

„ of tail, 11 inches.

„ of bill, from gape, 6 inches.

Casque broader than it is high.

Length of tarsus, 1 inch 9 lines.

„ of middle toe, 1 inch 11 lines.

„ of lateral toes, equal.

„ of hallux. $1\frac{1}{2}$ inch.

These Hornbills are not uncommon in Labuan ; they are shy and wild in their habits, haunting very deep and tall jungle, and are generally seen in pairs ; they feed almost entirely on fruits, though some which were kept in a cage by Mr. Motley for some time would eat almost anything ; they preferred plantains, however, of which they would gulp three

or four at a meal; the Malays say that they sometimes go on to the sea-beach to eat small fish. Mr. Motley's specimens were kept in a rattan-cage, and were chiefly fed upon boiled rice, rolled into balls, and which they bolted with great avidity; they became very tame, and always greeted their feeder with a croak; on one occasion they bolted some ducklings, which ventured within reach of their beaks. When first procured, one of these was very young, and without any symptoms of a horn upon his head; it grew, however, very rapidly. Small flocks of these birds may sometimes be seen at dusk, flying steadily along over the tops of the jungle, and evidently bound for a long flight. Their note is a very harsh and discordant croak, uttered with the mouth wide open, and with a curious alternate movement of the floor of the mouth and the short tongue at every repetition. It lasts sometimes for a minute or more, and is very striking when heard in the woods; it sounds something between the bray of an ass and the croak of a Landrail.

Order Scansores.

Fam. Cuculidæ.

Sub-fam. Coccyzinae.

Gen. Centropus.

Centropus philippensis (Horsf.).

General colour black, excepting the wings and centre of the back between them, which parts are bright rufous. On some parts of the plumage, the crown of the head and neck more especially, there are vivid steel-blue reflections when seen in a good light.

Legs, claws, and beak black.

Tail much rounded, the outer feathers being six inches shorter than the centre feathers.

The feathers on the head, neck, and back are rigid and bristly.

Length, about 1 foot $9\frac{1}{2}$ inches.

„ of bill, from gape, nearly 1 inch 9 lines.

„ „ front, $1\frac{1}{2}$ inch.

„ of wings, $8\frac{1}{2}$ inches.

„ of tail, $11\frac{1}{2}$ inches.

„ of tarsus, 2 inches 1 line.

„ of middle toe, 1 inch $10\frac{1}{2}$ lines.

„ of versatile toe, 1 inch 7 lines.

„ of inner toe, 1 inch 3 lines.

Length of hallux nearly 1 inch 9 lines, of which the claw measures 1 inch.

Not an uncommon species; frequents low damp places, the skirts of mangrove swamps, and wherever there is thick cover and water; it is, however, very difficult to get more than a glance at these birds, as they fly low, rarely rising above the bushes.

Sub-fam. Cuculinæ.

Gen. *Oxylophus*.

Oxylophus coromandus (Linn.).

Above, head, back, tail, scapularies and greater wing-coverts, black, with steel-blue reflections on the tail, and greenish reflections on the back; the rest of the wing rufous; the tips of the primary quills dusky.

Below, throat rufous yellow, passing into white on the belly, and this colour again, towards the tail, passing gradually into dark gray and black. The tail itself is black, with the feathers indistinctly tipped with dusky white.

The tail is much and regularly rounded, the outer feathers being four inches shorter than those of the centre.

Beak and claws black.

Length, 1 foot 4 inches.

„ of bill, from gape, 1 inch 3 lines.

„ „ front, 1 inch; the apparent front, from which this measurement is taken is thinly feathered; from the actual front, however, the bill measures 1 inch 3 lines.

Length of crest beyond the occiput, nearly $1\frac{1}{2}$ inch.

„ of wings, $6\frac{1}{4}$ inches.

„ of tail, $9\frac{1}{4}$ inches.

„ of tarsus, 1 inch.

„ of middle toe, 1 inch 2 lines.

„ of versatile toe, 1 inch.

„ of inner toe, barely 10 lines.

„ of hallux, 7 lines.

The specimen above described was shot by a native with a stumpitan or blow-pipe.

Gen. *Eudynamys*.

Eudynamys orientalis (Linn.).

Tiung Batu (Malay name).

General colour—glossy metallic black; feet and claws black; beak (in the dried specimen) blackish green lighter at the tip. Tail

rounded, the outer feathers about two inches shorter than those of the centre. In another specimen of this species (probably a young bird) the general black colour is not quite so glossy; the tail feathers, too, are slightly and imperfectly barred with dusky white markings.

Length, 1 foot 5 inches.

- „ of bill, from gape, nearly $1\frac{1}{2}$ inch.
- „ „ front, 1 inch 3 lines.
- „ of wings, $8\frac{1}{2}$ inches.
- „ of tail, 8 inches.
- „ of tarsus, 1 inch 3 lines.
- „ of middle toe, 1 inch 9 lines.
- „ of versatile toe, 1 inch 5 lines.
- „ of inner toe, 1 inch 1 line.
- „ of hallux, 10 lines.

One of the specimens of this bird which we have obtained, was shot among the limestone rocks of Pulan Burong, while feeding on the fruit of a dwarf-trailing figus. The Malays call it *Tiung Batu*, or rock mina. From this it would appear that it generally frequents rocks. It is called *mina*, probably from its resemblance to the *mina* grackle.

Order *Cirallæ*.

Fam. *Charadriadæ*.

Sub-fam. *Charadriinæ*.

Gen. *Squatarola*.

Squatarola Helvetica (?).

Tringa squatarola (Linn.) (?).

Above, brown, the feathers tipped, and more or less barred with white, so as to give a spotted appearance to the plumage; wings the same; primaries dark brown. Tail white, barred with brown.

Below, white, the throat slightly speckled and streaked with black; long flank feathers below the wing, black; in some specimens, which are probably in immature plumage, the breast and throat is irregularly marked with blotches of black.

Beak and legs black.

Length, about $13\frac{1}{2}$ inches.

- „ of bill, from gape, $1\frac{1}{2}$ inch.
- „ „ front, $1\frac{1}{4}$ inch.
- „ of wings, $7\frac{3}{4}$ inches.
- „ of tail, 3 inches.
- „ of thigh, $2\frac{3}{4}$ inches.
- „ of tarsus, 1 inch 10 lines.
- „ of middle toe, 1 inch 5 lines.
- „ of outer toe, 1 inch 1 line.

Length of inner toe, fully 1 inch.

„ of hallux, rudimentary.

This plover is very common on the borders of mangrove swamps fronting the sea, flying in small flocks, and perching upon stones, or on the branches of *Avicennice*, which frequently grow out very far into the sea. They are generally excessively fat, and are very good eating.

Gen. *Charadrius*.

Charadrius virginicus.

Pluvialis virginicus (Borkh.).

Above, rich brown, the feathers being tipped and partially barred with ochre-yellow; these markings on the tail and wings are yellowish white.

Below, yellowish white, irregularly and sparingly marked with dusky spots; throat speckled with longitudinal marks of the same colour.

Beak and legs, horn-black.

The general appearance of the bird is much like that of the common golden plover in the winter plumage.

Length, 11 inches.

„ of bill, from gape, 1 inch 1 line.

„ „ front, 11 lines.

„ of wings, 6 inches 2 lines.

„ of tail, 2 inches 8 lines.

„ of thigh, 2 inches 8 lines.

„ of tarsus, 1 inch 7 lines.

„ of middle toe, 1 inch 2 lines.

„ of outer toe, 11 lines.

„ of inner toe, $10\frac{1}{2}$ lines.

Small flocks of these plovers frequent the grassy land on the plains; they are very wary, generally feeding on rather elevated banks, and almost always rising out of shot. The stomach of the specimen, from which the above description is taken, was full of grasshoppers.

Charadrius alexandrinus (Linn.).

„ *cantianus* (Lath.).

Above, back and wings light dun brown, with the edges of the feathers very pale; tail-covers and centre feathers clear brown; outer tail feathers white; front, from the beak to the space between the eyes, white; a black streak extends on each side of the head from the nostril to the eye, and thence over the ears to the hind

head; on the crown of the head directly between the eyes is a patch of deep rich brown; the rest of the head is light brown to the occiput, where this colour is bounded by a light rufous band; to this succeeds a broad band of white, which passes round the neck, and which again is separated from the colour of the back by a blackish brown band, which nearly meets in front of the throat.

Below, white.

Length, nearly 7 inches.

- „ of bill, from gape, 8 lines
- „ „ front, 7 lines.
- „ of wings, 3 inches 10 lines.
- „ of tail, 1 inch 8 lines.
- „ of thigh, 1 inch 7 lines.
- „ of tarsus, 1 inch 1 line.
- „ of middle toe, 9 lines.
- „ of outer toe, 7 lines.
- „ of inner toe, $5\frac{1}{2}$ lines.

This species frequents the sea-shore, and, in habits, resembles the common ring plover.

Fam. Ardeidae.

Sub-fam. Ardeinae.

Gen. Ardea.

Ardea jugularis (Wag.).

Herodias matook (Vieill.).

Kanadi (Malay name).

General colour, above and below, brownish gray, with the long feathers of the crest, neck, and back, clear blue gray; the outer and exposed parts of the feathers of the wings and tail are also blue gray, but of a less bright tint; a streak of white extends from the chin for the whole length of the head to the upper part of the throat where it terminates, and the rest of the neck is of the general colour of the plumage.

Length, about 2 feet 5 inches.

- „ of bill, from gape, 4 inches 1 line.
- „ „ front, $3\frac{1}{4}$ inches.
- „ of wings, 11 inches.
- „ of tail, 3 inches 10 lines.
- „ of thigh, about 5 inches.
- „ of tarsus, 3 inches.
- „ of middle toe, 2 inches 7 lines.
- „ of outer toe, 2 inches 4 lines.
- „ of inner toe, 2 inches 1 line.
- „ of hallux, 1 inch 7 lines.

Very common on the sea-shore, and frequently flying and

feeding in small flocks; there is a breeding-place of these birds on a small island to the north-west of Labuan; it is an almost bare rock, at some distance from the shore; the eggs are here deposited in a slight depression of the surface, and are three in number to each nest; they are of a light green colour, and the nests are very numerous. While any one remains upon the rock, the old birds fly continuously round and round, screaming loudly all the time. The eggs are frequently taken by the natives, who are very fond of them; notwithstanding this, however, the birds do not forsake the place.

Ardea Javanica (Horsf.) (?).

Burong Tukoyan (Malay name).

Above, crown of the head grayish black, with dark bronze green reflections; a moustache of the same colour springs on either side from the gape; the long feathers of the back are light gray below, the upper or exposed surfaces having bronze green reflections; neck light greenish gray, tail gray, with the outer exposed edges of the feathers with greenish reflections; wings gray, the exposed parts of the feathers, as in the tail and back, having bronze green reflections; the wing-covers, secondaries, and tertials are edged more or less with whitish buff.

Below, whitish gray, a line of white, diversified with dusky spots, extends from the chin down the throat.

Beak black above, yellowish below; legs blackish brown.

Length, 19 to 20 inches.

- „ of bill, from gape, 3 inches 4 lines.
- „ „ front, barely $2\frac{1}{2}$ inches.
- „ of wings, $6\frac{1}{4}$ inches.
- „ of tail, 2 inches 5 lines.
- „ of thigh, 3 inches.
- „ of tarsus, $1\frac{3}{4}$ inch.
- „ of middle toe, nearly 2 inches.
- „ of lateral toes, 1 inch 7 lines; equal.
- „ of hallux, 1 inch 4 lines.

In colour and general appearance this Heron very much resembles the *Ardea Javanica* of Horsfield; it is, however, very considerably larger. It is not uncommon about tidal rivers, where it seeks its food in the mud; it perches on bushes, and, when disturbed, usually flies but a very short distance.

Fam. Scolopacidae.

Sub-fam. Totanidae.

Gen. *Tringoides*.

Tringoides hypoleuca (Gr.).

Actitis hypoleucos.

Ping Ping (Malay name).

Above, pale brown, the feathers on the back and tail and wing-covers irregularly barred and tipped with transverse bands of a darker shade of the same colour, the shafts of the quills are also of a darker shade than the rest of the feathers; some of the feathers of the greater wing-covers are tipped with white; the primaries have a white patch about half-way up each quill on the inner web, excepting the outer one, which is plain brown throughout; the secondaries are irregularly marked with white.

Below, white.

Length, about $7\frac{1}{2}$ inches.

„ of bill, from gape, 1 inch 1 line.

„ „ front, 11 lines.

„ of wings, $4\frac{1}{4}$ inches.

„ of tail, $2\frac{1}{4}$ inches.

„ of thigh, about 1 inch 7 lines.

„ of tarsus, 11 lines.

„ of middle toe, 1 inch.

„ of outer toe, 10 lines.

„ of inner toe, 9 lines.

„ of hallux, $3\frac{1}{2}$ lines.

This Sandpiper is very abundant on the beach, congregating in small flocks, and having much the habits of the Dunlin when feeding. Upon being flushed, they always fly back, and settle behind the intruder. In December and January they go up the brooks into the jungle, probably for the purpose of breeding. We have not, however, seen their nests.

Fam. Rallidae.

Sub-fam. Gallinulinae.

Gen. *Gallinula*.

Gallinula phoenicurus (Gm.).

„ *javanica* (Horsf.).

Above, general colour, from front to tail, dark olivaceous gray.

Below, general colour white; lower tail-covers and long feathers behind the thighs on the side of the rump rufous; feathers of the body under the wing blackish gray, a margin of which colour extends up the neck, separating the white of the lower from the greenish gray of the upper parts; the white of the lower parts

widens at the head, and passing over the eyes is continued by a narrow stripe above the frontal base of the bill.

Beak greenish yellow, darker towards the tip. Legs greenish yellow.

Length, about 15 inches.

- „ of bill, from gape, nearly $1\frac{1}{2}$ inch.
- „ „ front, 1 inch 5 lines.
- „ of wings, 5 inches 9 lines.
- „ of tail, 2 inches 3 lines.
- „ of leg, from thigh to claw of middle toe, $7\frac{3}{4}$ inches.
- „ of tarsus, 2 inches.
- „ of middle toe, 2 inches 5 lines.
- „ of outer toe, 2 inches.
- „ of inner toe, 1 inch 9 lines.
- „ of hallux, 1 inch.

This bird is said to be an inhabitant of fresh-water swamps. A living specimen was brought to Mr. Motley, which at first took any sort of animal food, such as chopped eggs, or dried meat, which was offered it; after a while, however, it refused everything but small shrimps, and when the supply of these failed, it refused to return to its former diet, and died.

Order Anseres.

Fam. Laridae.

Sub-fam. Sterninae.

Gen. Sterna.

Sterna cristata (Steph.) (?).

Thalasseus pelecanoïdes (Gould).

Above, front white, crown black, with a short crest of the same colour; back, neck, wings, and tail, light blueish gray.

Below, white, feathers on flank white, with dusky markings.

Foot jet black; bill dusky (perhaps yellow when fresh) Iris bright yellow.

Length, about 1 foot $5\frac{1}{2}$ inches.

- „ of bill, from gape, about $2\frac{3}{4}$ inches.*
- „ „ front, about 2 inches 4 lines.
- „ of tail, 6 inches.
- „ of wings, 13 inches.
- „ of tarsus, 1 inch.
- „ of middle toe, 1 inch 2 lines.
- „ of outer toe, 1 inch 1 line.
- „ of inner toe, barely 11 lines.

* The tip of the bill in our specimens having been broken, the measurement of that part may probably not be quite correct.

During the north-east monsoon these Terns are very common, associating in large flocks; they are then easy to approach, but when alone are very wary; the Malays say that their eggs are laid among grass near the sea, without any nest; they perch, in great numbers, upon the fishing stakes, which are sometimes almost white with them. The *Sterna cristata* of Swainson is somewhat smaller than the above bird, but, in other respects, they exactly agree.

PROSPECTUS.

CONTRIBUTIONS

TO THE

NATURAL HISTORY OF LABUAN,

AND

THE ADJACENT COASTS OF BORNEO.

By JAMES MOTLEY, Esq., of LABUAN,
AND LEWIS LLEWELYN DILLWYN, Esq., F.L.S., ETC.

THE residence of Mr. Motley in Labuan affords himself and Mr. Dillwyn, the authors of the proposed "Contributions," an opportunity of making themselves acquainted with the Natural products of that Island; and believing that the nature of its *Fauna* is by no means thoroughly known to Zoologists, and that the habits of the animals constituting that *Fauna* have been but little observed, and also considering that such information respecting them as they have already obtained, and shall probably again obtain, may prove an acceptable contribution to the science of Zoology, they are induced to offer to naturalists the forthcoming publication.

It is intended that the "Contributions" shall contain descriptions of such animals, both Vertebrate and Invertebrate, as inhabit the Island; these will be accompanied with original notes on their habits and other particulars connected with their Natural History. Illustrations will be given of such animals as it may appear to be desirable should be figured, of such more especially as are new, or of which figures are not easily obtainable. As it is expected that the work will extend over several Parts, the contents of which must depend upon the specimens and notes from time to time obtained, it will be impossible to adopt any regular order of arrangement; it will, however, be the endeavour of the Authors to make each Part as complete in itself as the circumstances will admit of. It is hoped that two or three Parts will be published annually. Each Part will contain about five sheets of letter-press, and ten or twelve coloured plates: the price will be 10s. 6d. The first is now at press, and will principally contain descriptions and figures of Quadrapeds, Birds, and Reptiles. Notes of interest which may be obtained subsequently to the publication of any Parts, and which refer to animals contained in them, will be given in the Part next ensuing.

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SOREX GRAYII

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SCIURUS RUFONIGER. Var

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MACROPTERYX KLECKO. Young.

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COPSYCHUS STRICKLANDII.

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